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RAILWAY AGE

THE STANDARD RAILROAD WEEKLY FOR ALMOST A CENTURY

JULY 7, 1952

CANADIAN FREI[GHT] ISSUE

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THESE COMPA[NIES] OPERATE GENERAL MOTO[RS] LOCOMOTIVES IN C[ANADA]:

Algoma Cen[tral] and Hudson Bay Railway Company
Alga[ma] Steel Corp. Ltd.
Canada and Gulf [Terminal] Railway Company
Canad[ian] National Railways
Canadian [Pacific] Railway Company
Chesapeak[e] and Ohio Railway Company
Dom[inion] Iron and Steel Co. Ltd.
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RAILWAY AGE

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THESE DRUMS WON'T TAKE A BEATING

Your own experience tells you drums are one of the most difficult loads to brace and block so they will arrive in good condition. Yet the Evans DF Loader—the Damage Free, Dunnage Free Loader—locks in drums so securely that damage, both to cars and lading, is reduced to an absolute minimum.

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EVANS LOADING AND RAILROAD EQUIPMENT

RETURNS REVENUE TO THE RAILS

WEEK AT A GLANCE

CURRENT RAILWAY STATISTICS

Operating revenues, four months
1952 ..... $3,434,950,070
1951 3,291,838,624

Operating expenses, four months
1952 ..... $2,677,624,722
1951 2,598,177,896

Taxes, four months
1952 ..... $ 409,483,233
1951 375,476,456

Net railway operating income, four months
1952 ..... $ 290,914,109
1951 251,321,653

Net income, estimated, four months
1952 ..... $ 186,000,000
1951 153,000,000

Average price railroad stocks
July 1, 1952 ..... 64.29
July 3, 1951 ..... 49.50

Car loadings, revenue freight
25 weeks, 1952 17,886,945
25 weeks, 1951 19,096,698

Average daily freight car surplus
Week ended June 21, 1952 24,246
Week ended June 23, 1951 23,377

Average daily freight car shortage
Week ended June 21, 1952 2,678
Week ended June 23, 1951 9,577

Freight cars delivered
May 1952 6,857
May 1951 9,774

Freight cars on order
June 1, 1952 103,910
June 1, 1951 150,628

Freight cars held for repairs
June 1, 1952 100,854
June 1, 1951 94,038

Net ton-miles per serviceable car per day
April 1952 (preliminary) 964
April 1951 1,042

Average number railroad employees
Mid-May 1952 1,242,620
Mid-May 1951 1,291,172

In This Issue . . .

THE INDISPENSABLE PART which railways, both old and new, are playing in the present tremendous — and solidly bottomed — Canadian "boom" is the single theme which runs through all but one of the major articles in this issue. Leading off, on page 98, is a descriptive analysis of the "boom" itself, and of the manner in which the Dominion's rich endowment of natural resources and the skillful enterprise of its citizens are combining with a propitious world situation to promote dramatic growth in agriculture, in mining, in manufacturing and in trade, both domestic and foreign. What the railways of Canada are doing to contribute to that growth, and the extent to which they are the "basic ingredient" in it, is related in part in the same article, in part in the editorial on page 95, and, in considerably more detail, in the other articles which follow.

CANADIAN RAILROADING, by and large, still means the two major transcontinental systems — the Canadian Pacific and the Canadian National. Each of them is the subject of detailed treatment in a separate article—the CPR on page 105 and the CNR on page 120. Sandwiched in between the two, on page 117, is a shorter article on "Cominco"—the Consolidated Mining & Smelting Co. of Canada, which is one of the world's biggest producers of lead, zinc, silver and fertilizers, and the biggest single shipper on the CPR.

BUT "PIONEER" RAILROADS—either independent lines or new extensions of one of the two older and larger systems—are playing an increasingly important part in Canadian economy by serving as "the key to unlock the jewel box of Canadian resources." Among the more important of these "frontier" lines, each the subject of a short article of its own, are the Kitimat-Terrace and Sherridon-Lynn Lake lines of the CNR (pages 130 and 134); the Quebec, North Shore & Labrador (page 132); the Romaine River (page 138); the Algoma Central & Hudson Bay (page 140); the Pacific Great Eastern (page 142); and the Ontario Northland (page 145). Together, they represent perhaps a greater volume of new railroad construction than is currently under way in any other country, at least outside the "Iron Curtain"; and, in addition, they represent a dramatic "throwback" to the railroad pioneering days before the turn of the Twentieth century.

DEPENDABLE PERFORMANCE is the goal of Canadian railroads, no less than of those in the United States. How they are striving to reach that goal through such means as dieselization, schedule improvement and terminal expansion is related in the articles on pages 148 and 153. Purchasing and stores practice, and the way in which railroad buying bolsters

WEEK AT A GLANCE

the Dominion's normal economy, are separately treated on pages 151-152.

THE SOLE EXCEPTION to the statement above, that this issue, outside the news pages, deals with railroading in the Dominion of Canada, is the article on pages 17 and 18. In that, are reviewed the careers of William White, new president of the New York Central; Perry M. Shoemaker, his successor as head of the Lackawanna, and Gustav Metzman, whom Mr. White succeeds on the NYC.

In Washington . . .

UNIT CONTROLS on production of freight cars and locomotives will be eliminated by the National Production Authority effective with materials allocated for the first quarter of 1953. But, the N. P. A. announcement emphasized, allocations of materials will be continued; end of unit controls does not mean that more total car or locomotive material will be available to the railroads or the railroad supply industry. Actually, with no settlement of the steel strike in prospect at press time, the material situation is almost certain to get worse before it gets better; railway supply representatives told N. P. A. the "steel pinch" might well have the industry "flat on its back" by late July or early August.

WASHINGTON NEWS includes Senate confirmation of two new appointments and one reappointment to the I.C.C.; Senate authorization of a $50,000 "study" of the commission; A.A.R. approval of a $350,000 addition to the Central Research Laboratory at Chicago; and I.C.C. suspension of baggage checking charges proposed by eastern and southern railroads. From other parts of the country come a news account of the Mechanical Division meeting at San Francisco; a new terminal proposal for Chicago, and a report of exhibition there of a mechanical reefer; election of Lawrence Richardson as president of the Rutland; a progress report on the southwestern wheat movement; and preliminary plans for a 47-mile plant facility railroad in Minnesota.

CANADIAN RAILROADS, like those in the United States, have been forced since the end of World War II to make repeated applications for increases in rates to offset rising wages and higher costs. In such rate increase cases the Canadian lines are represented before the regulatory authorities by the Railway Association of Canada, which is headed by James A. Brass as general secretary. Mr. Brass, who entered railroad service with the Canadian Pacific in 1903, is also chairman of the Canadian Passenger Association.

. . . And Elsewhere

CANADIAN CABINET MEMBERS will continue to enjoy use of private railway cars at government expense, as a result of recent action by the House of Commons. The first challenge in many years to the historic ministerial practice cropped up during a consideration of Transport Minister Lionel Chevrier's budget estimates, but the House finally appropriated funds for upkeep of two cars for the Viceroy, one for the Prime Minister, one for the minister of transport, and one for the cabinet generally and distinguished visitors.

BECAUSE CUB SCOUT RAILROAD MONTH in April 1951 (*Railway Age*, July 16, 1951, page 52) was such an outstanding success, national Cub Scout officers have asked the railroads to cooperate in the Cub Scout theme for September, which will be "The Mail Goes Through." It has been suggested that "tours of railway mail terminals be arranged locally and that Cubs see mail being loaded in cars, and other activities in and around terminals and platforms"; also that consideration be given to the possibility of Cub Scout visits to R.P.O. cars.

N. P. A. To End Unit Controls On Car, Locomotive Builders

Unit production controls governing output of freight cars and locomotives will be eliminated by the National Production Authority, effective with respect to materials allocated in this year's fourth quarter for production during the first quarter of 1953.

N.P.A. announced this at recent meetings of its advisory committees which represent the car and locomotive builders. At their previous meetings, the committees had recommended elimination of the unit controls which fix the number of cars and locomotives to be produced out of each quarter's allocations of controlled materials. (*Railway Age*, May 12, page 15)

The latest meetings of the committees were held during the week ended June 28, when N.P.A. also met with another of its advisory committees—that representing manufacturers of freight car component parts. N.P.A. press releases summarizing proceedings of these meetings indicated that discussions at all three reflected concern about the effect of the strike in the steel industry.

The Locomotive Builders Industry Advisory Committee, the release said, told N.P.A. that "if the steel strike continues much longer, the nation's railroad equipment industry will be laid 'flat on its back' late in July or early in August." The Railroad Contract Car Builders Industry Advisory Committee said that "some shops already have been shut down, others are on the verge of closing or will be immobilized by the end of July." The gist of comments by members of the Railroad Freight Car Component Parts Manufacturers Industry Advisory Committee was that "trouble confronts their industry unless steel production is resumed soon."

The report on the meeting of the locomotive builders committee pointed out that the "steel pinch" had unbalanced inventories to the point where shutdowns of shops were expected. Committee members urged N.P.A.'s Railroad Equipment Division to "explore the possibility of issuing a directive to enable the locomotive industry to get assured delivery of at least five per cent of its Controlled Materials Plan tonnage of steel in the particularly hard-to-get items when mills resume production."

Allocations to Continue

N.P.A. officials predicted that the elimination of unit controls would result in "greater flexibility" of car and locomotive production schedules." At the same time they emphasized that "materials will continue to be allocated to the railroad industry as at present," and that "end of unit controls does not mean that it will get more materials."

N.P.A. officials also revealed that their agency was asking the Defense Production Administration's approval of "fourth quarter allotments to support first quarter 1953 production of 1,000 locomotives." That would include 764 diesel-electrics and six steam locomotives for service on railroads in this country, 40 for industrial use in this country, 60 for export, and 130 for the armed services.

Both the locomotive and car committees as well as the car-components committee, recommended that C.M.P. allotment tickets be issued for this year's fourth quarter as though no steel strike were in progress. The car committee was further reported to have urged that the car-building industry "be formally defined as 'defense' so that it will be placed in a more favorable position to compete for steel in the 'wild scramble' that is expected to develop when the mills start rolling again."

Car Makers "Concerned"

"The freight car makers," the N.P.A. report also said, "expressed concern about the lightness of their order boards. They indicated they are considering building cars without specific orders, hoping to sell these 'stock' cars later. They added they are anxious to get material allotments to permit this."

The car-components committee reported that members of its industry had sufficient steel to carry on into August —"with time out for vacation closedowns." The committee members warned, however, that "without steel shipments by the middle of August, most of the companies will be forced to close." Lack of steel was also reported to be causing "widespread cancellation and deferment of orders placed by customers prior to the closing of the steel mills—a situation that not only raises a serious operating problem, but also makes strict compliance with N.P.A. inventory controls difficult."

H. T. Cover, vice-chairman (left), presents a gavel to B. M. Brown, chairman. The gavel was made of wood from the old Broad Street Station of the Pennsylvania at Philadelphia.

San Francisco Host To Mechanical Division

In one of the best attended meetings in recent years of the Mechanical Division of the Association of American Railroads, held June 24-26, at the Fairmont Hotel, San Francisco, 422 railroad and private car line men, representing more than 80 railroads and car companies, and about 400 railway supply representatives and others, listened to 17 technical reports and five addresses.

The addresses were made by D. J. Russell, president Southern Pacific; W. J. Patterson, member, Interstate Commerce Commission; E. H. Davidson, director, Bureau of Locomotive Inspection, I.C.C.; L. L. Adams, manager, transportation planning, United States Steel Company; and F. B. Whitman, president, Western Pacific.

During the meeting a gavel fashioned from the bannister of the main stairway of the old Broad Street Station of the Pennsylvania at Philadelphia, now being razed, was presented to the chairman, B. M. Brown, general superintendent of motive power of the SP. The presentation was made by the vice-chairman, H. T. Cover, assistant vice-president and chief of motive power of the Pennsylvania.

In the election of officers Mr. Cover, who has served as vice-chairman during the past two years, was advanced to chairman, and D. S. Neuhart, general superintendent of motive power and machinery of the Union Pacific, was elected vice-chairman. The terms of these officers expire in June 1954.

Elected to the General Committee for a two-year term expiring in 1954 were Past Chairman Brown; M. R. Brockman, assistant vice-president, Southern; A. K. Galloway, general superintendent motive power and equipment, Baltimore & Ohio; R. G. Henley, general superintendent motive power, Norfolk & Western; J. P. Morris, general manager, mechanical department, Atchison, Topeka & Santa Fe; and J. F. Ryan, superintendent machinery, Louisville & Nashville. J. L. Robson, general superintendent motive power, Great Northern, was elected to fill the term of F. R. Hosack, general superintendent motive power, Chicago, Rock Island & Pacific, who resigned from the General Committee. His term expires in June 1953.

Peak Reached In S. W. Wheat Movement

Harvesting of what is now estimated to be the largest crop of winter wheat (1,060,000,000 bushels) in the history of the United States is well under way in the Southwest, and running about a week ahead of schedule. Through the first 26 days of June 71,116 cars had been loaded, compared with 27,078 in the same period of 1951. As this issue went to press, most of the wheat in Texas and Oklahoma had been harvested, while the movement in Kansas was going heavy, with the peak expected about July 4. Colorado and Nebraska wheat also is moving in volume. Beginning about the date of this issue, harvesting is expected to begin in Missouri, Indiana, Ohio and Illinois.

As noted in last month's Freight Traffic Issue, the Car Service Division of the Association of American Railroads issued, effective May 10, its Special Car Order No. 85, which directed eastern and southeastern roads to send home to western lines their plain box cars. Effective June 16, a supplement to that order directs eastern and southern roads to send home plain box cars of Wabash, Gulf, Mobile & Ohio and Chicago & Eastern Illinois ownerships, to handle movements out of Missouri, Indiana, Ohio and Illinois. Under a further supplement to this order, which became effective July 1, box cars owned by the seven southwestern roads which caught the first impact of the grain loading were removed from the provision of S.C.O. No. 85, while plain box cars of the Chicago Great Western were added to the list of those to be sent "home."

At the same time, A. H. Gass, chairman of the C.S.D., issued Special Car Order No. 86, effective July 1, directed to the Santa Fe, Burlington, Rock Island, Missouri Pacific, Frisco and Union Pacific. The order directs those roads not to load cars of those owners unless the loading line is the owner. An exception is made where a car can be loaded to the owning road, but if such loading is not immediately available cars "must be given expedited movement to the owners."

Eastern and southern roads, during May, sent home through main gateways to the west 1,649 empty plain box cars daily. During the first 26 days of June, this figure was 1,524. Thus, by June 1, southwestern roads had 103.9 per cent of their plain box ownership on line, or 5,355 more of such cars than they owned at that time. Of the total, 49.3 per cent of such cars actually were their own.

To date, only one embargo has been issued in the grain territory. This embargo, issued June 27 and effective June 28, applies to movement of grain for storage at all points in Kansas and at Kansas City, Mo., and St. Joseph. The embargo does not affect grain moving directly to market for sale in Kansas and the specified Missouri points. Moreover, special permits are not required to move storage grain into these areas. However, the shipper must certify on the bill of lading or reconsignment order that arrangements for storage have been made. Although there is plenty of storage space available at terminal elevators (40 per cent occupied on June 21, compared with 57.8 per cent occupied at the same time last year), wheat is moving into the terminals faster than elevators can handle it. This embargo was issued in order not to tie up cars unnecessarily.

One thing which has been helping the car supply situation in the Southwest this year is that very little of the wheat has been moving out of the area. About 50 per cent of it, to date, is going under government loans at terminal elevators. Only about five per cent of the cars are leaving the Southwest. Thus, turn-around time of cars is kept relatively low and an adequate supply is better assured.

NEW SERVICES OF INTEREST TO SHIPPERS

CHICAGO & EASTERN ILLINOIS—*Has opened a new traffic office in the Dixie Terminal bldg., 4th and Walnut streets, Cincinnati—telephone Garfield 8862. W. T. Guthrie, general agent, is in charge.*

ERIE—Has opened a new traffic office in Mexico City, at Isabel La Catolica 45, Mexico 1, D. F. Rual M. Campos, formerly assistant freight traffic manager of the National of Mexico, has been appointed general Mexican manager, traffic department, there.

NEW ORLEANS PUBLIC BELT—*Has opened a new two-mile extension along the Industrial canal, bringing its line to within three-quarters of a mile of Lake Ponchartrain.*

NEW YORK CENTRAL -- Has made the following changes in its scheduled l.c.l. car lines:

Car lines discontinued:

Detroit to Rochester, N.Y., and Cleveland (PRR); Gibson Tfr., Ind., to Cleveland (PRR); Toledo to Cleveland (PRR); Springfield, Ohio, to Cleveland (PRR); Indianapolis to Cleveland (PRR); Kankakee, Ill., to Cleveland; Utica, N.Y., to Grand Rapids, Mich.; Poughkeepsie, N.Y., to Chicago, Cleveland, and Philadelphia (PRR).

New car lines:

Indianapolis to Manchester Tfr., N.Y. (LV); Poughkeepsie, N.Y., to Yonkers; Detroit to Pittsburgh (PRR); Gibson Tfr., Ind., to Pittsburgh (PRR); Toledo to Pittsburgh (PRR); Springfield, Ohio, to Pittsburgh (PRR); Indianapolis to Pittsburgh (PRR).

ST. LOUIS-SAN FRANCISCO—*Has opened a new traffic office in the South Carolina National Bank bldg., in Greenville, S.C. A. C. Hancock is general agent.*

Albert H. Jones, of RR Adjustment Board, Dies

Albert H. Jones, one of the original members of the National Railroad Adjustment Board and a member of the predecessor Regional Train Service Board since passage of the Railway Labor act in 1929, died at his home in Chicago on June 25. Mr. Jones began his railway career with the St. Louis-San Francisco as a clerk in 1904 and rose to the position of assistant to the vice-president before entering government service.

Chicago Gets Another Terminal Proposal

Another scheme to consolidate Chicago passenger terminals has been presented to the city council's committee on terminals. Drawn up by Earl B. Anderson, engineer for the committee, the new plan is described as less pretentious than its predecessors, calling for relocation of only one of the four so-called "south side" terminals.

The purpose of the plan is to centralize terminal facilities of the present Grand Central, Dearborn and La Salle St. stations. To that end, Mr. Anderson proposes removal of Dearborn station facilities from their present site and their relocation immediately east of Grand Central so the two stations would be side-by-side and fronting on Harrison st.—only one block from the "loop" district.

Approaches to the new station site, Mr. Anderson said, would be made on land now railroad-owned but unoccupied since the Chicago river was straightened some 20 years ago. Trackage could be at ground level, he pointed out. Although no specific plans were drawn up to that end, Mr. Anderson suggested that La Salle St. station facilities could be "cut back" to Harrison street at some future date, thus placing all three terminals side-by-side. Such a move, he said, could eliminate need for the present elevated approach to this station and at the same time enable a wider concourse—with more station tracks—than the present site permits. All three stations would be adjacent to the new Congress St. expressway and subway line, and because they could be connected by a continuous concourse, inter-depot cross-town traffic would be substantially reduced.

Mr. Anderson's plan did not consider any changes for the Illinois Central station located about a mile distant from his proposed 3-terminal site. The Dearborn station is used by trains of the Santa Fe; Wabash; Chicago & Eastern Illinois; Grand Trunk Western; Chicago, Indianapolis & Louisville; Erie; and Chicago & Western Indiana. Its concourse and waiting room facilities were extensively modernized in 1947. The La Salle St. station is used by trains of the New York Central, the Rock Island and the Nickel Plate; Grand Central by the Baltimore & Ohio, Chesapeake & Ohio, Soo Line and Chicago Great Western.

Mechanical Refrigerator Car Exhibited at Chicago

More than 250 railway officers and representatives of various branches of the food industry gathered at the Illinois Central station in Chicago on June 26 to examine a mechanically operated refrigerator car under service conditions. The car, enroute from Sioux Falls, S.D., to Miami, Fla., contained a mixed load of fresh and canned meats from John Morrell & Co.'s plant at Sioux Falls.

During the exhibition, the car was opened for inspection with canvas flaps covering the open door. One of its two mechanical refrigeration units was repeatedly taken out of service so that engineering representatives of the manufacturer, the Thermo-King Railway Corporation, could demonstrate operation and maintenance features. A recording thermometer in the car indicated the inside temperature remained consistent with that in the car before the exhibition began.

The car itself was built new by the Mather Stock Car Company for Morrell (*Railway Age*, March 17, page 14). It features a newly designed welded steel roof and "semi-cold wall" construction that includes a six-inch thickness of solid insulating material. It also features a new design of meat hook rack to prevent hooks being detached by vertical impact.

After the exhibit the car continued to Florida. On the return trip it is to handle frozen fruit juice concentrates.

Senate Authorizes Study of the I.C.C.

The Senate on June 26 adopted a resolution authorizing its Committee on Interstate and Foreign Commerce to make "an investigation and study of the organization and operations of the Interstate Commerce Commission for the purpose of determining what changes should be made in order to promote maximum efficiency in such organization and operations."

The resolution, S. Res. 332, was sponsored by the committee's chairman—Senator Johnson, Democrat of Colorado. (*Railway Age*, June 16, page 16.) The original version proposed that $100,000 be provided for the study, but this was cut to $50,000 in the final version.

The committee is required to submit its report on the study by January 31, 1953.

Baggage-Checking Tariffs Suspended by I.C.C.

Division 2 of the Interstate Commerce Commission has suspended, from July 1 to January 31, 1953, the operation of tariffs whereby eastern and southern railroads are seeking to establish service charges for handling baggage checked on passenger tickets.

At present a passenger can check up to 150 pounds of baggage free. The roads propose a charge of 25 cents for each piece of hand luggage and 50 cents for each trunk. The new charges

would apply at all stations in Trunkline, Central and Southern territories.

The Georgia Public Service Commission is protesting the new service charges. The Georgia commission contends that common carriers of passengers have historically carried passenger baggage free of charge.

The I.C.C. suspension order (I. & S. No. 6015) assigned the case for hearing at Atlanta, Ga., on August 1 before Examiner Palmer.

A.A.R. Board Approves New Research Facilities

"To enlarge facilities for an accelerated program of railroad research," the board of directors of the Association of American Railroads has authorized construction of another building at the A.A.R. Central Research Laboratory at the Illinois Institute of Technology in Chicago. This was announced by William T. Faricy, A.A.R. president, following the board's June 27 meeting at Washington, D.C.

The new building will cost approximately $350,000, Mr. Faricy said, and will be located north of the present A.A.R. laboratory. It will be used primarily to house mechanical research.

The A.A.R. president explained that the newly authorized laboratory will be devoted entirely to working laboratory space, with administrative offices remaining in the present central laboratory. "The additional space will not only expand facilities vitally needed for research projects but also will speed up the tempo of present experimentation," Mr. Faricy declared.

It has been the policy of the A.A.R. also to utilize outside research organizations in conducting research, Mr. Faricy said, and this policy will be continued. Work will also continue in many railroad laboratories, through A.A.R. technical committees, and in the field, where tracks and rolling stock are subjected to tests under operating conditions, he pointed out.

Congress Extends Controls Set-Up Another Year

President Truman has signed into law a modified version of the Defense Production Act—extending until April 30, 1953, the government's control over wages and prices, and until June 30, 1953, the authority to maintain allocations and priorities. Congress cleared the new legislation only two days before the old law was scheduled to expire.

Controls administered by the Defense Transport Administration are thus extended another year. So is the authority by which the Defense Production Administration allocates, for example, steel for freight cars and locomotives. The Office of Price Stabilization will be in business through next April 30, as will a new Wage Stabilization Board with more restricted functions than the present board which it supplants.

Railroad rates and charges remain exempt from O.P.S. regulation under the new law. Congress rewrote this section, to spell out in detail the exemptions for common carriers. Per diem rates, station washroom facilities, repair of foreign cars, and parking facilities operated by carriers are not subject to O.P.S. regulation.

Also exempt from price control are certain charges which carriers must pay, i.e., "charges paid by common carriers for the performance of a part of their transportation services to the public, including the use of cars or other transportation equipment owned by a person other than a common carrier, protective service against heat or cold to property transported or to be transported, and pickup and delivery and local transfer services."

Common carriers must still give 30 days' notice to the President, or such agency as he may designate, when they propose any increase in rates and charges. The carriers also must consent to this agency's intervention before the appropriate regulatory body. This intervention role has been taken by O.P.S.

A new provision added by Congress specifically precludes rate-case intervention by O.P.S. on its own initiative. As long as the agency retains its present delegation of authority from the President, the latest change won't affect the agency's role in rate cases.

The act provides that the new Wage Stabilization Board will take over on July 29. Meanwhile, the present board is prohibited from issuing any "regulation or order except with respect to individual cases pending" before the board prior to June 27.

This language raises the question of whether the wage board can go ahead and issue its pending statement of policy on so-called "improvement factor" wage increases. Several railroad unions have asked the board for a policy state-

SENATE CONFIRMS THREE APPOINTMENTS TO I.C.C.

The Senate has confirmed the appointments of Anthony F. Arpaia and Martin Kelso Elliott as new members of the Interstate Commerce Commission. The reappointment of Charles D. Mahaffie for another seven-year term was also confirmed.

Mr. Elliott will succeed Commissioner Clyde B. Aitchison, who is retiring after 35 years with the I.C.C. Mr. Arpaia will fill the vacancy created last April by the resignation of Commissioner John L. Rogers. *(Railway Age*, June 30, page 12.)

TOURIST CARS of the Canadian National—a total of 20 of them—recently got a complete face-lifting by the road's Transcona shops at Winnipeg, at a cost of more than $16,000 each. As may be seen here, center posts were removed from each pair of windows in the sections and double-glazed metal framed "picture" windows almost four feet long substituted. Mirrors were relocated alongside each of the seats and an enlarged air conditioning outlet was placed over the center of each window.

Canadian tourist cars have long carried kitchen accommodations for the use of passengers in preparing light meals. These facilities have been entirely rebuilt in Monel metal and a fast-heating two-burner hot plate has replaced the former stove. In addition, the cars were equipped with roller bearings and redecorated in pastel shades of green. They are being assigned to service on the "Continental Limited."

RICHARDSON ELECTED PRESIDENT OF RUTLAND

Lawrence Richardson, who has been serving as consultant in the operating and mechanical departments of the Rutland since September 1951, has been elected president of that road. Mr. Richardson is also assistant general manager of the New York, Susquehanna & Western, but will resign that position to devote full time to the Rutland.

ment which would clear the way for such increases. The Brotherhood of Railroad Trainmen has already advised President Truman it would seek such an increase after July 1.

While no official interpretation was immediately available it was generally agreed that one intent of Congress in adopting the June 27 cut-off date was to preclude issuance of an "improvement factor" policy statement by the present board.

EQUIPMENT AND SUPPLIES

Domestic Equipment Orders Reported in June

Domestic equipment orders for 219 diesel-electric locomotive units, 150 freight cars and six passenger cars were reported by individual purchaser in *Railway Age* in June. Estimated cost of the locomotive units is $34,384,000; of the freight cars, $1,050,000; and of the passenger cars, $960,000. An accompanying table lists the orders in detail.

During the first six months of 1952 *Railway Age* has reported domestic orders by individual purchaser for 870 diesel-electric locomotive units and 15 steam locomotives costing an estimated $138,332,000; 20,090 freight-train cars costing an estimated $124,781,000; and 147 passenger-train cars costing an estimated $11,318,016.

FREIGHT CARS

The **Chesapeake & Ohio** is inquiring for 350 50-ton gondola cars and 400 70-ton gondola cars.

The **Missouri-Kansas-Texas** is inquiring for 500 50-ton box cars, of which 300 are to be 40½ ft. long and 200 are to be 50½ ft. long.

The **Soo Line** has ordered 400 50-ton box cars (of which 300 will be 40 ft. long and 100 will be 50 ft. long), from its own shops. Total estimated cost of the cars is $2,340,000, and delivery is scheduled for late next year. Two hundred of the 40-ft. cars are for the Soo Line and the balance of the order is for the Wisconsin Central.

The **Transportation Corps** has ordered 204 80-ton flat cars form the Pressed Steel Car Company and 386 40-ton tank cars from the American Car & Foundry Co. (*Railway Age*, March 24, page 56).

SUPPLY TRADE

John P. Krumech has been appointed vice-president of the **Shippers' Car Line Corporation.** Mr. Krumech, who has been traffic manager of the American Car & Foundry Co., of which Shippers' Car Line is the tank-car owning and leasing subsidiary, assumed his new duties on July 1, with headquarters as before in New York. A native New Yorker, Mr. Krumech was formerly employed by the Pennsylvania and the Milwaukee, and joined A.C.F. in 1920. He was appointed traffic manager in 1934.

E. K. Lofton has been appointed sales manager of the **Dayton Rubber Company's** railway, and agricultural

E. K. Lofton

original equipment manufacturers', divisions. Formerly regional sales manager of the central region of the mechanical division, Mr. Lofton has been with the company since 1934. He will have head-

E. F. Leherissey

quarters in the company's main plant, Dayton, Ohio. Mr. Lofton will be assisted by **E. F. Leherissey** as manager of field sales of the railway division, with headquarters in the company's Chicago offices.

Arthur H. Burt has been appointed director of sales for the **Sherwin-Williams Company,** with headquarters in Cleveland. Mr. Burt has spent his entire business career with Sherwin-Williams. In 1946 he was appointed director of the north central sales region,

Domestic Equipment Orders Reported in June

LOCOMOTIVES

Purchaser	No.	Type	Issue Reported	Builder
B. & L.E.	10	1,500-hp. "A" Road	June 23	Electro-Motive
	8	1,500-hp. "B" Road	June 23	Electro-Motive
	3	1,500-hp. Rd.-Sw.	June 23	Electro-Motive
	2	1,600-hp. Switching	June 23	Baldwin-Lima-Hamilton
	2	1,000-hp. Switching	June 23	American-G.E.
C. of Ga.	15	1,600-hp. Rd.-Sw.	June 23	American-G.E.
C. & O.	4	3-unit 4,500-hp. Freight	June 23	Electro-Motive
	2	1,200-hp. Switching	June 23	Electro-Motive
	29	1,500-hp. Rd.-Sw.	June 23	Electro-Motive
C. B. & Q.	6	2,250-hp. Passenger	June 23	Electro-Motive
	17	1,500-hp. Rd.-Sw.	June 23	Electro-Motive
	4	2-unit 3,000-hp. Rd.-Sw.	June 23	Electro-Motive
G.N.	1	2-unit 3,000-hp. Freight	June 23	Electro-Motive
N.Y.C. & St. L.	10	1,500-hp. Rd.-Sw.	June 23	Electro-Motive
	10	1,000-hp. Switching	June 23	American-G.E.
	5	1,200-hp. Switching	June 23	Fairbanks, Morse
P. & W.V.	6	2,000-hp. Rd.-Sw.	June 9	Fairbanks, Morse
St. L. Sw.	8	1,600-hp. Rd.-Sw.	June 23	American-G.E.
	4	1,500-hp. "A" Freight	June 23	Electro-Motive
S.A.L.	5	2,250-hp. "A" Passenger	June 23	Electro-Motive
	25	1,500-hp. Rd.-Sw.	June 23	Electro-Motive
	10	1,600-hp. Rd.-Sw.	June 23	American-G.E.
	10	1,000-hp. Switching	June 23	American-G.E.
	10	1,200-hp. Switching	June 23	Baldwin-Lima-Hamilton

FREIGHT CARS

Apalachicola Northern	100	Pulpwood	June 30	Pullman-Standard
G.M. & O.	50	70-ton Cov. Hopper	June 30	Pullman-Standard

PASSENGER CARS

N.Y. N.H. & H.	3	RDC-1	June 16	Budd
	3	RDC-3	June 16	Budd

also with headquarters in Cleveland, in which capacity he was serving at the time of his new appointment.

Robert C. Carruthers has been appointed assistant sales manager, welding products, of the **American Brake Shoe Company's** American manganese steel division. Mr. Carruthers, a graduate of the Massachusetts Institute of Technology, joined American Brake Shoe in 1950 as metallurgical assistant. Until his recent appointment, he was sales development engineer with the division.

Paul Hansen has been appointed manager of railroad sales, central division, **Armco Drainage & Metal Products, Inc.** For the past six years Mr. Hansen has been manager of the company's construction department.

Paul Hansen

Previously, he had been a civil engineer with the Pennsylvania. Mr. Hansen, whose headquarters will be at the company's office in the Keith building, Cleveland, succeeds **C. H. Anderson,** who has resigned to enter business with his father at Mahaffey, Pa.

OBITUARY

John O. Pope, Sr., an employee of 20 years service with the Thresher Paint & Varnish Co., died on June 18 at his home in Baltimore.

CAR SERVICE

The I.C.C. has again set back expiration dates of four service orders which it issued last month to meet conditions arising as a result of the strike in the steel industry. The new expiration date is 11:59 p.m. July 15 for three of the orders. Two of these are Nos. 884 and 885, which provide for permit systems whereby railroads can get authority to load cars with ex-lake iron ore and import ore, holding such cars free of demurrage. The third is No. 886, which suspends Agent L. C. Schuldt's demurrage tariff insofar as it applies to lake-cargo coal. The fourth extension was effected by issuance of No. 865-D, which suspended, from 7 a.m. July 1 until 7 a.m. July 16, the provisions of No. 865 that impose penalty demurrage charges on gondolas and flat cars.

I.C.C. Service Order No. 887, effective from July 1 through October 31, unless otherwise modified, authorizes substitution of up to three SFRD, PFE, or WP refrigerator cars (not suitable for transporting perishables) in lieu of each box car ordered for shipments within the area embraced by the states of Oregon, California, Arizona and Nevada.

The Car Service Division, A.A.R., has modified Special Car Order No. 85; has issued Special Car Order No. 86; and has placed a partial embargo, effective June 28, on movement of grain for storage to all points in Kansas and at Kansas City, Mo., and St. Joseph. For details of these C.S.D. actions, see the story entitled "Peak Reached in S.W. Wheat Movement" on page 12.

CONSTRUCTION

Reserve Mining to Build 47-Mile Interplant RR

The Reserve Mining Company intends to build an interplant, non-common carrier railroad, approximately 47 miles long, from Babbitt, Minn., to a plant site, temporarily designated as Lakeside, on Lake Superior about 2½ miles east of Beaver Bay. The cost of the line, including yard trackage, is presently estimated at about $12,500,000. It will be built by the Hunkin-Conkey Construction Company, the Arundel Corporation and the L. E. Dixon Company, which will work on the project under the name of Hunkin-Arundel-Dixon.

Although final choice of type of motive power to be used has not yet been made, a spokesman for Reserve Mining told *Railway Age* "we are quite sure that we will use diesel-electric locomotives." Specially designed ore cars, for use with rotary dump, will be employed. The cars, which will not be needed for at least three years, are expected to be of about 90 gross tons capacity, and will be equipped with roller bearings.

FINANCIAL

New Securities

Application has been filed with the I.C.C. by:

NEW YORK CENTRAL.—To assume liability for $8,475,000 of equipment trust certificates, to finance in part 64 diesel-electric locomotive units and 56 freight cars. Estimated cost of the new equipment, listed below, is $11,363,380:

	Description and Builder	Estimated Unit Cost
32	1,500-hp. road freight "A" units (Electro-Motive Division, General Motors Corporation)	$177,475
32	1,500-hp. road freight "B" units (Electro-Motive)	158,980
50	12,500-gal. steel tank cars (General American Transportation Corporation)	7,250
4	170-ton steel flat cars, depressed center (Despatch Shops)	43,880
2	125-ton steel flat cars, depressed center (Despatch Shops)	29,400

The certificates, dated August 15, would mature in 15 annual installments of $565,000 each, beginning August 15, 1953. They would be sold by competitive bids, with the interest rate to be set by such bids.

Division 4 of the I.C.C. has **authorized:**

CHICAGO & NORTH WESTERN.—To assume liability for $6,555,000 of equipment trust certificates, to finance in part 24 diesel-electric locomotive units and 650 freight cars costing $8,204,200 (*Railway Age*, May 26, page 62). Division 4 approved sale of the certificates for 99.13, with interest at 3⅛ per cent—the bid of Salomon Bros. & Hutzler and three associates—which will make the average annual cost of the proceeds to the road approximately 3.29 per cent. The certificates, dated July 1, will mature in 15 annual installments of $437,000 each, beginning July 1, 1953. They were reoffered to the public at prices yielding from 2.2 to 3.25 per cent, according to maturity.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—To assume liability for $2,850,000 of series A equipment trust certificates, to finance in part 12 diesel-electric locomotive units and 325 freight cars. Estimated cost of this equipment is $3,590,191 (*Railway Age*, June 2, page 99). Division 4's report approved sale of the certificates for 99.0369 with interest at 3⅛ per cent—the bid of Halsey, Stuart & Co. and three associates—which will make the average annual cost of the proceeds to the road approximately 3.28 per cent. The certificates, dated July 1, will mature in 30 semiannual installments of $95,000 each, beginning January 1, 1953. They were reoffered to the public at prices yielding from 2.1 to 3.35 per cent, according to maturity.

Dividends Declared

ATCHISON, TOPEKA & SANTA FE.—$1.25, quarterly, increased, payable September 2 to holders of record July 25.

CAROLINA, CLINCHFIELD & OHIO.—$1.25, quarterly, payable July 21 to holders of record July 10.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—common, $5, semiannual; preferred, $1.25, quarterly, both payable July 31 to holders of record July 11.

GULF, MOBILE & OHIO.—common, 50c, quarterly, payable September 30 to holders of record September 10; $5 preferred, $1.25, quarterly, payable March 31, 1953, to holders of record March 11, 1953.

NORFOLK & WESTERN.—common, 75c, quarterly, payable September 10 to holders of record August 7; 4% adjustment preferred, 25c, quarterly, payable August 8 to holders of record July 17.

PITTSBURGH, CINCINNATI, CHICAGO & ST. LOUIS.—$2.50, semiannual, payable July 21 to holders of record July 10.

PITTSBURGH, YOUNGSTOWN & ASHTABULA.—7% preferred, $1.75, quarterly, payable September 2 to holders of record August 20.

READING.—50c, quarterly, payable August 14 to holders of record July 17.

RICHMOND, FREDERICKSBURG & POTOMAC.—voting common, 50c, and 50c extra; non-voting common, 50c, and 50c extra, all payable July 1, to holders of record June 20.

WESTERN PACIFIC.—75c, quarterly, payable August 15 to holders of record August 1.

Security Price Averages

	July 1	Prev. Week	Last Year
Average price of 20 representative railway stocks	64.29	62.98	49.50
Average price of 20 representative railway bonds	93.98	94.30	91.42

Table of Selected Income and Balance-Sheet Items of Class I Steam Railways for March and three months of 1952 appears on page 160.

New Chiefs for the New York Central and the Lackawanna

Careers show interest in industry problems and "outside" relations, as well as in operation of their own companies

Gustav Metzman

William White

Perry M. Shoemaker

William White—who, as briefly announced in last week's *Railway Age*, has been elected president and chief executive officer of the New York Central, succeeding Gustav Metzman, who becomes chairman of the board—will, at 55, be slightly younger than F. E. Williamson was when he became the Central's president in 1932. Thus, the system will have its youngest chief executive since the regime of A. H. Smith, back prior to World War I.

In the eleven-and-a-half years that Mr. White has headed the Lackawanna—over and above the operations which have confronted all wartime and postwar railroad managements—he has grappled successfully with some major problems which have not confronted most other railroads. Among these may be mentioned: a financial reorganization without recourse to the courts; extensive legislation and litigation over taxation (in which most of the New Jersey railroads were involved); the revenue problem encountered from the continuing decline in importance of anthracite coal traffic, formerly the company's main revenue source; and the peculiar difficulties which engage the energies of all railroads with extensive suburban passenger traffic.

Despite the attention required by these internal problems, Mr. White has interested himself in a wide range of activities looking toward the welfare of the railroad in industry as a whole. He has for the past couple of years been chairman of the "railroad panel" of the Transportation Association of America—the panel which, by extensive conferring with representatives of panels representing other interests (including other agencies of transportation), has succeeded in reaching a large degree of agreement on a number of heretofore highly controversial issues (*Railway Age*, June 9, page 51).

He has within recent months served as chairman of the public relations committee of the Eastern Railroad Presidents Conference, a job which has called for the expenditure of a large amount of time and energy—primarily in the endeavor to secure a larger appreciation by leaders of "outside" industry of their own stake in the welfare of the railroads; and encouraging railroad men to become more effective interpreters of the railways' cause in terms of other people's interests. Without having, himself, any formal academic background, he has been a leader in railroad liaison with academic people—and has arranged to have several Lackawanna officers attend the so-called "advanced management program" at Harvard Business School.

Mr. White is a native of the metropolitan area of Northern New Jersey, of Holland Dutch ancestry. He has been railroading for almost 39 years—continuously, that is, since August 1913, when the late C. E. Hildum, then the Erie's auditor of freight accounts in New York, hired him at $20 a month to run a card-sorting machine.

Later in 1913 William White was transferred to Jersey City as a stenographer and clerk in the office of the superintendent of the New York, Susquehanna & Western (then operated by the Erie). In 1916 he became secretary to vice-president.

By 1923, at the age of 26, he was a trainmaster. On the eve of his thirtieth birthday, he was superintendent. He then moved up by successive steps to the position of general manager of the Erie's Eastern district at New York, where he served from 1936 to 1938. In the latter year he went to the Virginian as general manager and was shortly thereafter elected vice-president and general manager. On January 1, 1941, he became president of the Lackawanna.

Financial Position Improved

The Lackawanna's management in 1941 was confronted with a major financial problem, which was surmounted by several years of purposive hard work. The road had sustained a cumulative deficit aggregating almost $16,000,000 in the years 1932-39 and was burdened with heavy rental charges for leased lines. These lessor lines were merged over a period of years with the parent company by an exchange of securities—the parent company's obligations being made attractive by a sinking fund indenture of great severity.

As a result of this and other financial operations in the direction of simplification, fixed charges were reduced by $1,600,000 in the first six years of the White regime. By purchase of its bonds, the company effected a further reduction of more than $400,000 in fixed charges by the end of 1951. The company's mortgage indentures now require that 60 per cent of all available net income, plus an amount equal to dividends paid,

go into the sinking fund—until fixed and contingent interest is reduced to $4,000,000. Thereafter only 20 per cent of available net income needs to be paid into the sinking fund.

Dividends of 25 cents a share have been paid in each of the past five years (including 1952); and disbursements will have to be held to a modest rate in relation to net income (which was $3.77, including a tax refund, per $50-par share in 1951) until fixed charges are reduced to the point where present large sinking-fund payments are no longer required. Meantime, the Lackawanna purchased 330,000 shares of Nickel Plate stock at a cost of $3,809,081—which is currently selling for nearly four times the purchase price. Thus, while the Lackawanna has not yet attained the "blue chip" category, it has quite evidently got a financial plan well calculated, in due course, to put it into that bracket.

Despite its difficulties, the Lackawanna in 1951 had operating revenues 73 per cent greater than in 1940. Its revenue ton-mileage was up one-third and revenue passenger-mileage just about equalled that of 1940. Meantime, operating performance received appropriate attention with the result that, of 20 Eastern railroad systems in the "large" category, the Lackawanna's operating ratio stood at the midway point in the group. Only five of these Eastern systems had a lower maintenance ratio.

As also noted briefly in last week's issue, Mr. White is being succeeded as president of the Lackawanna by Perry M. Shoemaker, heretofore vice-president, operation. The Lackawanna's president-elect has been closely associated with Mr. White in the attainment of the results noted above. Nearing his 46th birthday, Mr. Shoemaker hails from Elmira, N. Y., where he grew up in a family of five boys, all sons of a prominent and still active operator of a cold-storage business in that community; and four of the boys are graduate engineers. Perry Shoemaker got his degree in mechanical engineering from the University of Michigan and thereafter received an M.S. degree in 1928 from Yale, where he was a Strathcona fellow in transportation.

He had worked during the summers of 1926 and 1927 as a track laborer for the Pennsylvania, and in the summer of 1928 was an assistant on a dynamometer car for the Erie. He thereafter became a station laborer, freight checker and yardmaster on the Erie, and in 1934 went to the New Haven as research assistant, later being named superintendent of freight transportation. Not long after Mr. White went to the Lackawanna in 1941, Mr. Shoemaker joined him as transportation assistant to the president. He then became superintendent, general superintendent, and general manager; and, since 1948, has been vice-president, operation.

Like his predecessor in office, Mr. Shoemaker has been active in "outside" and industry concerns. He is a past president of the New York Railroad Club and of the American Association of Railroad Superintendents; and is chairman of the General Managers Association of New York and of the contact committee of the Atlantic States Shippers Advisory Board.

Gustav Metzman, the Central's chairman-elect, has been railroading for 49 years, having begun his career in the industry in 1903 as a copy clerk in the car service department of the Baltimore & Ohio at Baltimore, where he was born in 1886, and where he attended public school and the Polytechnic Institute. In 1916 he left the Baltimore & Ohio to join the staff of the Eastern Railroad Presidents' Conference as a transportation supervisor. In 1918 and 1919 he was with the United States Railroad Administration in New York. Since March 16, 1920, he has been in the employ of the New York Central—with a leave-of-absence for five months during 1942 when he was chief of the Railroad Division, Transportation Corps, U. S. Army, at Washington.

Colonel Metzman's entire career—prior to his attainment of executive rank—lay in the transportation department. From 1920 to 1922 he was transportation assistant to vice-president of the New York Central and, from 1922 to 1928, transportation assistant to president. From 1929 to 1940 he was manager of freight transportation. In 1940-42 he was assistant vice-president at Chicago. Following his tour of duty with the Army in Washington in 1942, he was at Cincinnati—first as assistant vice-president and, later, as vice-president in charge of the Big Four lines. From January 1 to September 1, 1944, he was vice-president of the system at Chicago, on the latter date becoming president, with headquarters at New York. He is a director of the Association of American Railroads and of J. P. Morgan & Co., and chairman of the Eastern Railroad Presidents' Conference.

During the several "seizures" of the railroads by the Army as a result of difficulties with the unions, Colonel Metzman has been called upon to don his uniform for extensive periods, as the Army's representative in charge of the railroads in the New York area. As chairman of the Eastern Railroad Presidents' Conference he took the initial leadership in intensifying the public relations activities of the Eastern railroads, in programs subsequently assigned to committees of which William White and Walter Tuohy (president of the Chesapeake & Ohio) have been the chairmen.

Ready to Go Ahead

The New York Central is, from a standpoint of gross revenues, almost nine times as large a property as the Lackawanna—in which the Central, incidentally has board representation and owns a little less than 8 per cent of the outstanding capital stock. In net income, the Central has not been faring, relatively, quite so well—in 1951, for instance, its net was only about 2⅓ times that of the smaller company.

But the Central, also, has made great progress in strengthening its financial position during the past decade—largely by the reduction of indebtedness. As is usual with larger properties, it has not been able to achieve as high a ratio of dieselization as quickly as the smaller roads—although its acquisition of diesel power is going forward rapidly. At the end of 1951, the Central's diesel and electric locomotive-mileage was 47 per cent of the total. On the Lackawanna at the end of 1951, over 90 per cent of freight ton-miles, 94 per cent of non-suburban passenger train-miles and 71 per cent of its yard switching-miles had been dieselized. It would appear, therefore, that the Central can still look forward to large gains as further dieselization is achieved.

A vigorous pursuit of the program of adapting the property to technological change and close attention to maintaining efficiency of operation should keep the company headed toward a larger ratio of net earnings. The fortunes of such a big railroad, however, even more than those of smaller ones, are to a large degree determined by the economic and political circumstances of the industry as a whole. In its new chief executive, the Central will have a man thoroughly experienced in the efficient management of internal railroad affairs; and one who, moreover, has been growing rapidly in his interest and skill in getting a hearing for the railroads in the direction of improving their political environment. The effective exercise of such capacities is as fundamental to the satisfactory performance of the individual railroad as to that of the railroad industry as a whole.

RAILWAYS: BASIC INGREDIENT IN CANADA'S GROWTH

"The nineteenth century was the century of the United States; the twentieth century belongs to Canada."

So predicted Sir Wilfrid Laurier, prime minister of Canada, in the early 1900's, when a boom in wheat and railroads looked like it would have no end. It did, of course. The twenties were prosperous, but less exciting. And the thirties—which hit a primary producer like Canada, dependent upon world markets and prices, harder than any other kind of economy—postponed the immediate fulfillment of the Laurier dream.

Yet, today in mid-century, Canada is enjoying another boom—one which is healthier and broader-based; and seems destined to establish a permanently higher plateau of economic activity. The North American press has been so filled with information about this boom that almost every American is acquainted with the new iron mines in Labrador, Lake Allard titanium, the world's biggest aluminum smelter proposed at Kitimat, and uranium deposits (for atom bombs) on the shore of Great Bear Lake at the Arctic Circle. The theme of this issue of *Railway Age* is to set forth in specific detail how this healthy boom is bottomed solidly upon railroad transportation, and how national development is affecting investment in new railroad facilities.

Why the Boom?

Since 1940 Canada's industrial development has been what one Wall Street firm called "the biggest business story of this decade." M. W. Maxwell, chief of development of the Canadian National, claims that his country is experiencing this development because, for the first time in history, the world *must* have its natural products. "Where would we have found outlets for titanium or uranium in 1900?" he asks. But, with the turn of the second half of the twentieth century, world technology "suddenly needs badly what we happen to have."

To illustrate: A large portion of the country is covered with "northern type" forests, mainly evergreen—considered useless not many years ago. These forests are the basis of plastics and textile fibers for uses of all sorts, bathrooms to clothing. Nobody would have gone to the expense of extracting iron ore from remote Labrador as long as more accessible ore was plentiful. Now the world needs it. Says Mr. Maxwell: "Canada was a jewel box, waiting to be unlocked. The railways forged the key."

World demand is not, of course, the whole story. A boom like that which Canada is enjoying is, without question, founded upon a high rate of private investment in new productive facilities—including that by the railways themselves. Charts in the article which immediately follows demonstrate conclusively that the prosperity of the country and the expenditure of money by *business* in new and modern facilities go hand in hand. They show also that spending by a business community which has confidence in its right and ability to earn (and retain) profits is just as important to prosperity as foreign trade—even in a country like Canada—and that prosperity can be sustained, even, with a relative drop in exports, as long as plant investment continues high. These truths are too apt to be forgotten by that school of politicians which thinks that the secret of prosperity lies in hand-outs to everybody at home and abroad to keep up consumers' "purchasing power." Where capital investment proceeds apace, ample "purchasing power" by consumers follows automatically.

Leads in Extractive Industries

The basis of Canada's boom, therefore, is a rich endowment of natural resources, primarily—with the elements of propitious times and skill in enterprise as strong supporting factors. Canada is now the first country in the world in output, per capita, of the *extractive* industries. Of these, agriculture (employing one-quarter

of the gainfully occupied population) is the most important.

Canada is the second largest producer of wheat in the world. Most of her production is exported to other continents. The ability of the three prairie provinces—Manitoba. Saskatchewan and Alberta—to make a profit from grain exported through ports as far as 2,500 land-miles away depends utterly upon cheap railroad transportation. Settlement of this agricultural area was accomplished much more rapidly than that of the prairie states of the U. S. and, for the most part, much more recently. As W. A. Mather, president of the Canadian Pacific. put it in a recent speech:

"The plains themselves provided a great opportunity for the settlement and cultivation of the soil. Without railways, their contribution to the wheat supply of the world would probably have been out of the question. . . . Between old Ontario and the prairies lay an area [the Laurentian shield] through which it was never possible to dream of providing even the most modest facilities for transportation by the use of horse-drawn vehicles on highways. or even by a combination of these and interior waterways. Only a railway could have linked eastern and western Canada in any sense of creating a common economy.

"Since this linking occurred very soon after railways were available, and largely because they had become available, there was never any reason for the development of western Canada to follow the slow pattern which would have been imposed by less efficient transportation facilities. Western Canada sprang into existence at the magic touch of the railways, almost full grown." Mr. Mather pointed out that the first railway connection between eastern and western Canada was completed, by his company, in 1885. There are a large number of participants in the road's pension plan today who were alive at that time.

Strip Economy

Grain is but the most important example of the extent to which Canada's economy is founded upon cheap, long-haul railway transportation. The country's No. 2 extractive industry—mining—is equally dependent upon the railways, not only because of the bulk nature of its freight, but because the richest sources of minerals lie in remote, otherwise unproductive areas, which cannot support the type of network transportation common in densely populated countries. These areas require penetration by pioneering railways for their profitable exploitation.

Consider also the fact that Canada's most intense development is largely a "strip economy" along the northern border of the U. S. To an extent far greater than even the U. S. it requires inexpensive, ultra-long-distance rail transportation to serve this type of economic geography. Because that "strip" is shallow in geographical depth and not dense in population, the whole must be united, for efficiency, into a single market—3,770 rail-miles from Halifax to Vancouver. It is not strange therefore, that an important portion of the "bargaining package" federation of the provinces into a united country was the provision of sufficient east-west railroad facilities to make the confederation binding. The Intercolonial Railway was a "must" to get the Maritimes into the union; the Canadian Pacific was the door prize for British Columbia; and, as recently as 1949, Newfoundland stipulated the absorption and improvement of its local railway by the Canadian National, plus rate integration with the rest of Canada, as a condition of its becoming Canada's tenth province.

Canada is a country which would never have come into being in its present form without low-cost rail transportation. It continues to depend upon its railways for its further development and prosperity. The maintenance of its remarkable growth hinges on continued understanding by its economic and political leaders of the degree to which healthy railways are the skeleton and bloodstream of Canada's organic life.

A Masterpiece of Railroad Improvisation

The Canadian railways are old hands at thinking up ways by which to handle sudden booms in traffic. The CNR's job of improvisation at Halifax, N. S., during World War II is a little-known tale of just such ingenuity which deserves retelling.

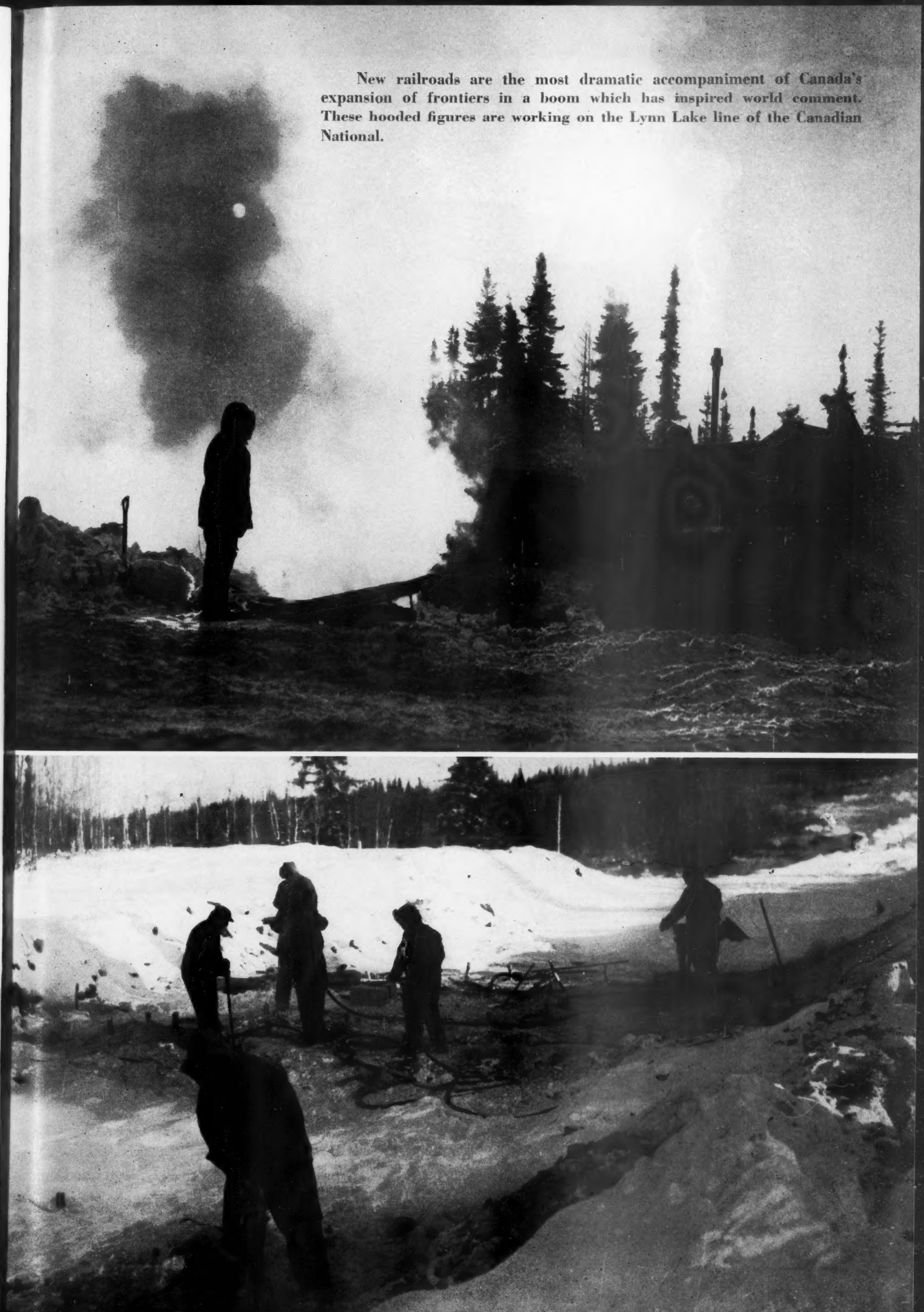
Halifax, Canada's chief "winter" port on the Atlantic, is a place of "feast or famine." In war, it is one of the busiest railway points in the country. It has excess capacity in peacetime.

Prior to declaration of war in September 1939, the CNR anticipated Halifax's weakness and had a fair estimate of what war would bring. Within two weeks after hostilities started, it had a plan in effect for strengthening the entire main line between Montreal and Halifax. Centralized Traffic Control was installed as speedily as possible on 130 miles between Moncton, N. B., and Truro, N. S. Because of the terrain, the yards at Halifax could not be enlarged at all. But a large supporting segregating and holding yard was started and completed in record time at Truro.

In June 1941, to "loosen up" Halifax still further, the CNR decided to go into the lighterage business (New York harbor style), although such an operation was entirely strange to Halifax. Because no lighters were available in the country, it decided to utilize the age-old skills of the wooden fishing-boat builders of Nova Scotia. Packaged, dimensioned, mill-finished materials were assembled in unit loads at the other end of Canada, British Columbia, and rushed to some 20 contractors who, for the first time in their lives, were to build harbor lighters or scows, from the contents of a three-car "package" which the railway furnished as their "capital." In this manner more than 100 lighters were constructed.

Six tugboats were obtained "by hook or crook" and, by Christmas day, six months after the decision was made, the CNR was in the lighterage business. In general, open-top loads destined for Halifax transshipment were segregated and moved to a new lighterage pier at Bedford basin, where the contents were transferred to lighters for water movement direct to shipside, where loading could proceed simultaneously with pier transshipment from closed cars.

Thus was Halifax kept fluid during World War II.



New railroads are the most dramatic accompaniment of Canada's expansion of frontiers in a boom which has inspired world comment. These hooded figures are working on the Lynn Lake line of the Canadian National.

Canadian Pacific

Dramatic symbol of Canada's boom—great new hydroelectric power projects in the wilderness.

The Canadian "Boom" and

Canada's present "boom" has its roots in World War II. Canada was the fourth greatest air power among the United Nations. It was the fourth largest producer of war supplies among all the allied countries. With one-eleventh the population of the United States, Canada's industrial production, at the height of the war, was one-fifth that of the U. S.

The war-boomed surge kept on going. In 1951, Canada's gross national product (value of goods produced and services performed) was in dollars, four times what it was in 1939. Even when the influence of inflation is ruled out, and 1935-1939 prices are used, gross national product in 1951 was double 1939. In 10 years the country's population increased by a third. Immigrants are pouring in at a rate 10 times that of a decade ago.

A boom of this nature is founded upon a high rate of private investment in new productive facilities. The relation of this new investment to the increase in goods and services is shown in Chart I, where the trends in new investment, exports and gross national product, 1926-1951, are compared. The amount of capital expenditure in Canada between 1945 and 1950 was greater than at any time in the history of the country—in terms both of money and in volume of work. The trend of new investment alone (in dollar value, as well as physical volume) is shown in Chart II. How new investment has increased, compared with the 1935-1939 average, in fields important for railroad freight tonnage (mining, manufacturing, pulp and paper, iron and steel, and chemicals) is shown graphically in Chart III.

Investment programs for 1952 (by all interests, including government), compared with 1951, show an increase of 9 per cent in dollar value and 4 per cent in physical volume. The most noteworthy feature of the 1952 spending is the increased activity among those industries contributing directly to the defense effort and those which develop strategic natural resources. Important increases in proposed capital investments are reported for iron ore mining, asbestos mining, oil well drilling, iron and steel manufacturing, chemicals, oil refineries, non-ferrous metals and rubber products.

What Is Canada?

Canada is somewhat larger in area than the continental United States and Alaska combined. It is considerably larger than the whole of Europe. In physical features, Canada is divided into natural divisions shown on the map of geological areas.

In this vast and diversified land live a little more than 14 million people—compared with 155 million in the U. S.

Some 16 per cent of the total revenue freight tonnage of the Canadian railways is agricultural commodities

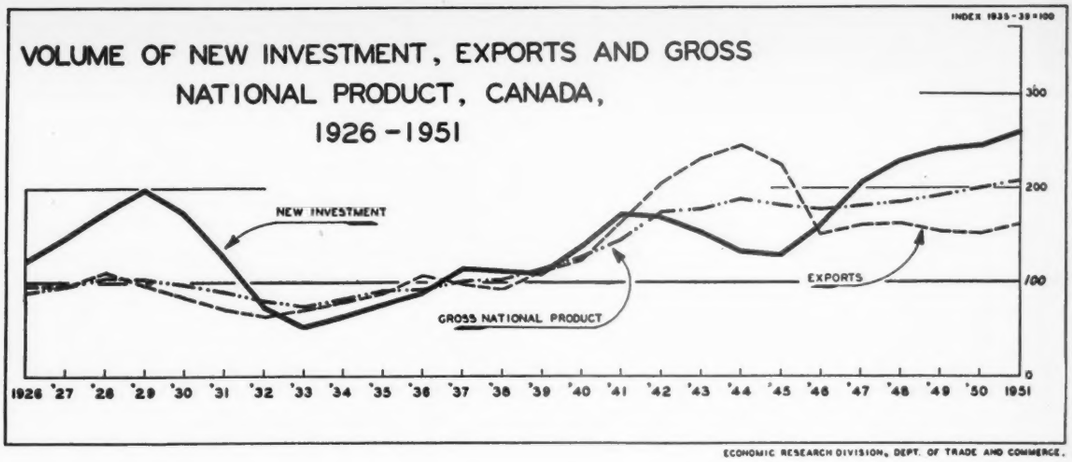

INDEX 1935-39=100
VOLUME OF NEW INVESTMENT, EXPORTS AND GROSS NATIONAL PRODUCT, CANADA, 1926-1951
NEW INVESTMENT
EXPORTS
GROSS NATIONAL PRODUCT
300
200
100
0
1926 '27 '28 '29 '30 '31 '32 '33 '34 '35 '36 '37 '38 '39 '40 '41 '42 '43 '44 '45 '46 '47 '48 '49 '50 1951
ECONOMIC RESEARCH DIVISION, DEPT. OF TRADE AND COMMERCE.

Chart I — HOW PROSPERITY (gross national product) depends upon the volume of new investment is clearly shown in this 25-year trend record. Note the lesser dependence of g.n.p. upon export trade in recent years.

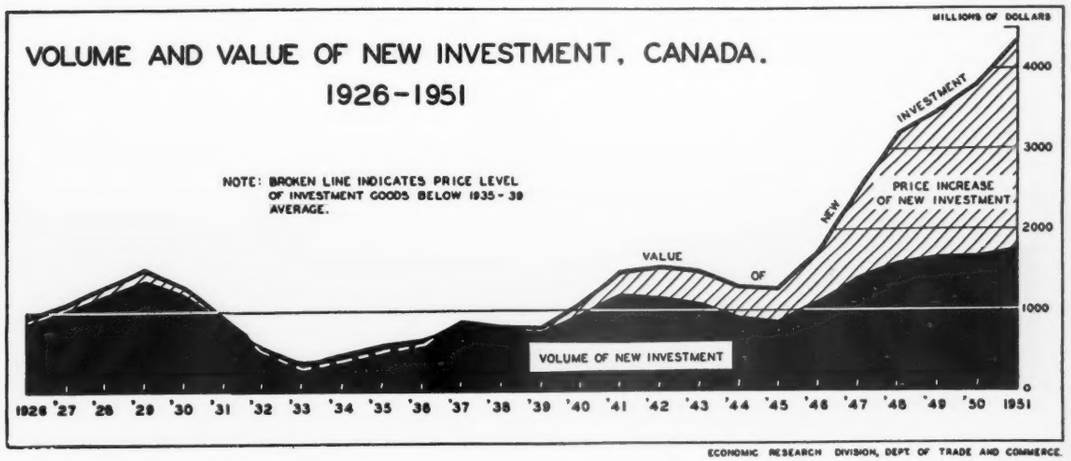

MILLIONS OF DOLLARS
VOLUME AND VALUE OF NEW INVESTMENT, CANADA. 1926-1951
NOTE: BROKEN LINE INDICATES PRICE LEVEL OF INVESTMENT GOODS BELOW 1935-39 AVERAGE.
VALUE OF NEW INVESTMENT
PRICE INCREASE OF NEW INVESTMENT
VOLUME OF NEW INVESTMENT
4000
3000
2000
1000
0
1926 '27 '28 '29 '30 '31 '32 '33 '34 '35 '36 '37 '38 '39 '40 '41 '42 '43 '44 '45 '46 '47 '48 '49 '50 1951
ECONOMIC RESEARCH DIVISION, DEPT. OF TRADE AND COMMERCE.

Chart II—NEW INVESTMENT is now at a peak, even when the distortion caused by inflation is cancelled out.

the Railways

(compared with 9 per cent in the U. S.). Wheat alone accounts for 6.6 per cent of all railroad tonnage (compared with 1.6 per cent in the U. S.). Hence, the steady, if unspectacular, growth of the grain territory in the past decade has meant increasing railroad traffic—though much of it moves at artificially depressed rates, established by statute.

Mines and Minerals

It is in the No. 2 extractive industry of Canada—mining—that the most dramatic features of Canada's boom show forth. For a decade mining has produced more than one-third of the country's railway freight tonnage. Spreading over more than half of the country is the "Laurentian shield" which fans north from the Great Lakes, becoming progressively wider. The great shield separates eastern Canada from the prairie provinces by a rocky, forested wasteland which cannot be made productive in agriculture.

While it remains an impediment to agricultural settlement and development, and still poses difficult problems of transport, the great shield is the site of this most dramatic part of Canada's modern boom. There has never been a systematic survey of its minerals. Nobody knows the extent of its resources. "Striking it rich" in areas thought unproductive is an everday occurrence.

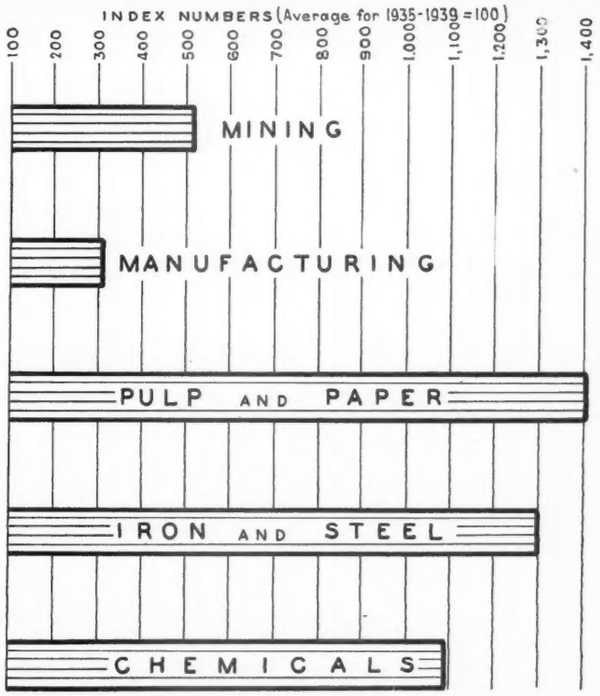
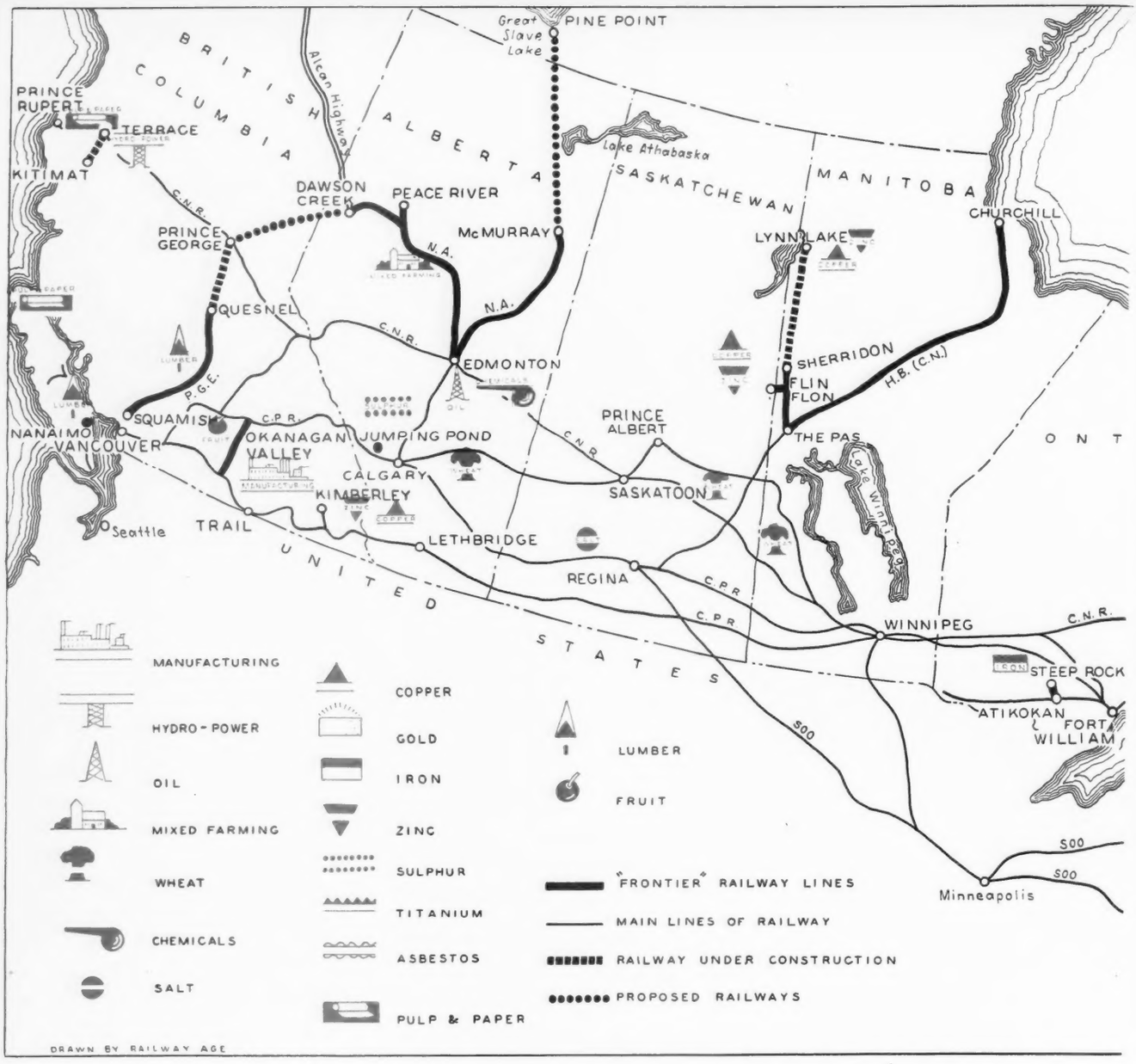


Chart III—PERCENTAGE INCREASE IN NEW INVESTMENT: Selected forms of activity, of importance to railroad traffic, show tremendous increases in investment in new facilities in 1951, compared with the thirties.

The output of the mining industry embraces some 66 different minerals. Canada ranks first in world production of nickel, asbestos and platinum; second in alumi-



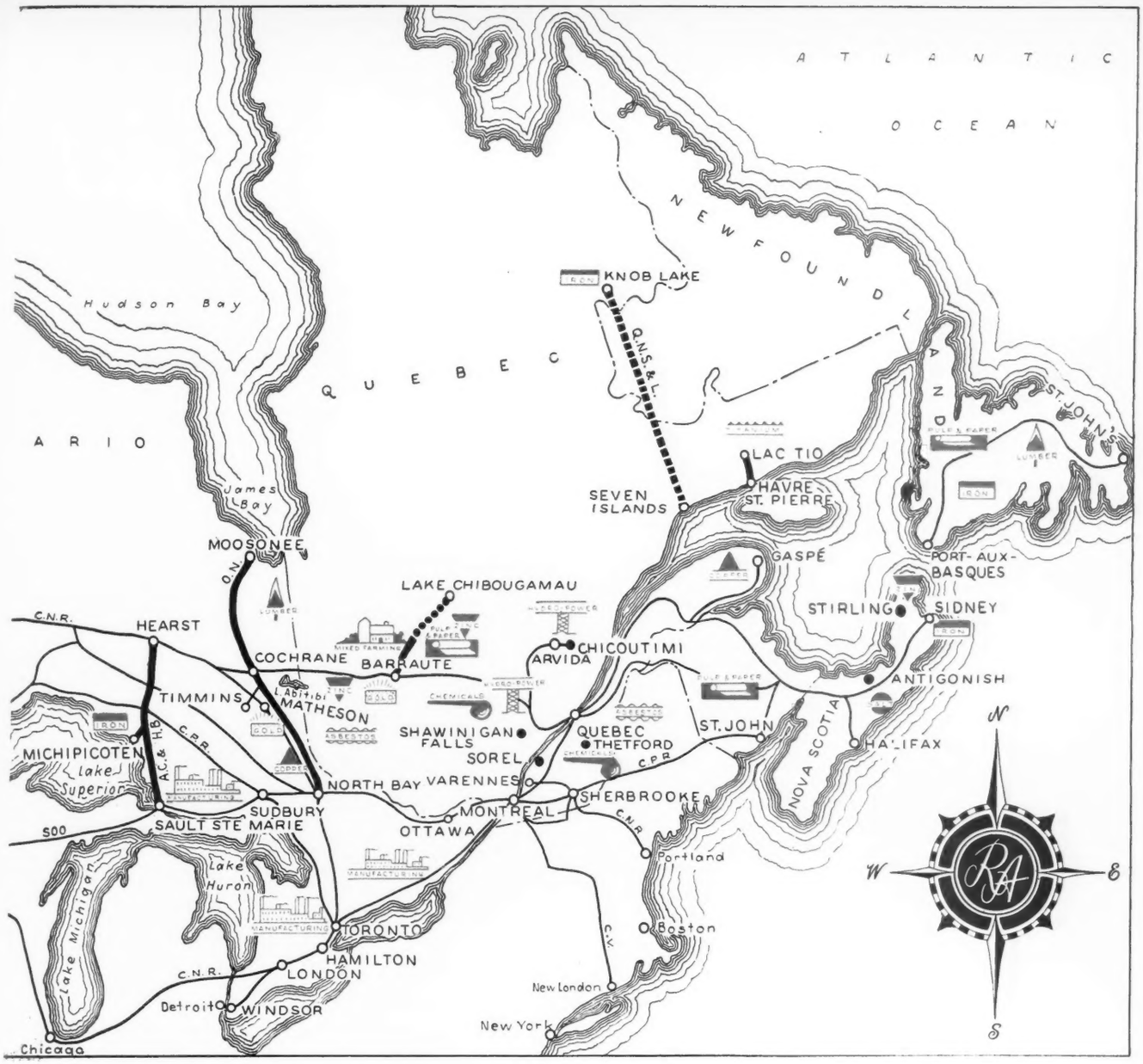
Some—but not all—of the boom spots in Canada, and their relationship to railway transportation, are shown on this outline map of Canada. Only the main stems of the Canadian Pacific and Canadian National are shown. "Fron-

num (from imported ores), zinc, gold, cadmium, selenimum, tellurium, radium and uranium; third in silver; and fourth in lead, copper and cobalt. By 1955, productive capacity is expected to increase 45 per cent for aluminum; 27 per cent for zinc, and 13 per cent for nickel.

Boom Towns—New

Until recently it was believed that no substantial deposits of iron ore existed north of the U. S. boundary. But Canada's geology conforms to no simple pattern, and good things continue to turn up in strange places. A decade ago, high-grade hematite was discovered at Steep Rock Lake (on the CNR between Port Arthur and Winnipeg) and Steep Rock Mines, Ltd., began shipping to a new ore dock at Port Arthur in 1944. That company aims at producing 4 million tons a year by 1954. In the Michipicoten area, along Lake Superior, the Algoma Steel Corporation has enlarged its sintering plant and has discovered, and will exploit, a new body of high-grade ore. It is also investigating "promising" iron deposits some 60 miles west of Ottawa. Even more recent and spectacular, however, is the finding of immense deposits of high-grade iron ore in the almost unknown Ungava country of Quebec and Labrador, some 360 wilderness miles north of the St. Lawrence. Now a combination of Canadian and U. S. business interests are spending $250 million in facilities to extract and transport the ore. (See article on the Quebec, North Shore & Labrador.)

Titanium, a metal new to commerce, lighter than steel and stronger than aluminum (for which reason there is a pent-up demand before facilities can be set up to produce it!) may be obtained from ore deposits recently discovered in the Lake Allard district of Quebec. Here more than 200 million tons of pure ilmenite have been proved, and the U. S. Kennecott Copper Corporation and New



tier" railways are independent lines or branches of the trunk lines which are either new additions to the railway network or are pioneering lines serving country which is still, economically, in a frontier stage of development.

Jersey Zinc Company have teamed up in a $35 million development project to exploit the find. Included is a brand new, 27-mile heavy duty railroad. (See Romaine River article.)

When the Sherritt Gordon copper-zinc-gold-silver mine was opened at Sherridon, Man., on a branch of the Hudson Bay railway (now operated by the CNR), it was believed to be at the end of the civilized world. But that deposit has now played out, and the CNR is building a 155-mile extension across the permanently frozen tundra north to Lynn Lake, where new diggings have begun.

At Kitimat, B. C., on an arm of the Pacific Ocean, along the mountainous coast of British Columbia, there is being constructed the world's largest aluminum plant. Raw bauxite will come to it by sea from the Caribbean. To service the plant, the CNR is building a new 46-mile railway, through difficult terrain.

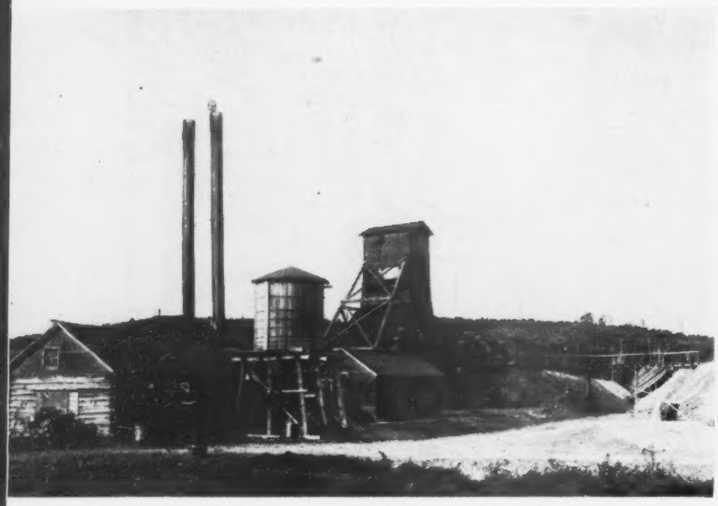
These are but the highlights of the mineral boom. Too numerous even to list are less spectacular finds which promise to build new producing areas. Thus, for example, at Lindbergh, on the Saskatchewan river, near the eastern border of Alberta, close to the end of the Heinsburg branch of the CNR (to the north of that road's network of prairie lines) there is a growing salt industry. Its raw material was found only a few years ago in the course of a search for petroleum.

A new copper town may shortly spring up in the Gaspé peninsula of Quebec. Drilling near the head of the York river has indicated the existence of a large body of low grade copper ore. Studies may show the desirability of building a branch off the CNR Gaspé line to serve it. Within the past few years, a deposit of untold millions of tons of salt, with limestone lying on top of it, was found near Antigonish, N. S. On Cape Breton Island, at Stirling, production is getting under way at a deposit of zinc-copper-gold-silver-lead. Production of more than 500

Tremendous forest resources . . . support great new chemical projects

Canadian National

. . . like this new cellulose plant, built by U. S. capital, 12 miles from Prince Rupert, B. C.



Frontier mines like this (the Pandora-Cadillac, in the Noranda area) . . .

. . . depend on frontier railways. (This was the first train to reach Val d'Or on the CNR, in 1937.)

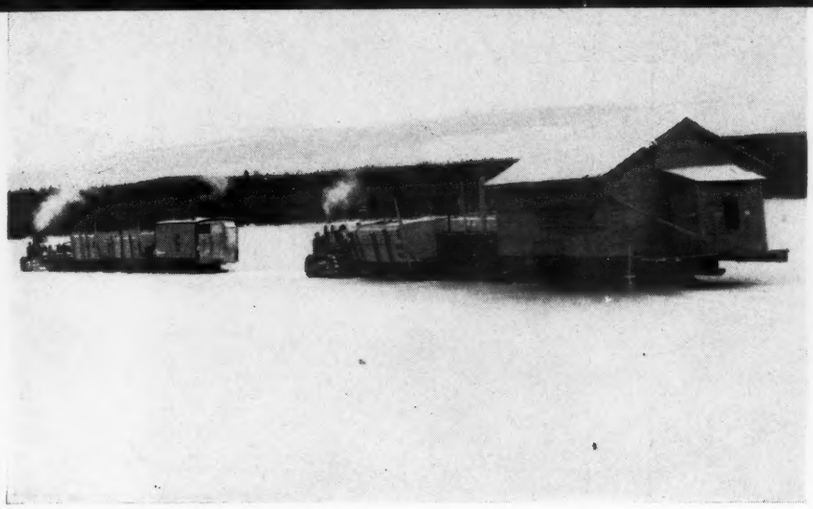
At Shawinigan Falls, Que., a city of 28,000 people (background) depends on chemical industries consuming power developed at installations like this one on the St. Maurice river.

tons a day of concentrate is contemplated at this site.

Canada's mining and refining expansion is not confined to brand-new boom towns. Older areas of pioneering development—equally dependent upon railway transportation—are continuing to progress at a spectacular rate and to require major additions in transport facilities.

The top producer of base metals in Canada is the Consolidated Mining & Smelting Co., a CPR subsidiary. Its great Sullivan mine and metallurgical plants at Trail, B. C., (largest zinc-lead output in the world) exhibit an unusually close correlation with railroad transportation. This company is constantly expanding its volume and range of products. A $70 million expansion program is now in hand. The Canadian financial press predicts that, when this program is complete, Cominco may go ahead with a $50 to $100 million steel mill—first in the Canadian west. The practical recovery of indium is another recent accomplishment at Trail.

At Arvida, Que., on the Saguenay river, the Aluminum Company of Canada operates the largest existing plant of its kind in the world, with a production not greatly inferior to that of all the aluminum plants in the U. S. Bauxite is brought from British Guiana by water, so the extensive water power resources of the Lake St. John area may be utilized. This great development would not have been possible without the early building of the Lake St. John line of the CNR, thrusting 222 miles north through wilderness. Alcan itself operates two supporting



Snow tractors moved miners' homes over frozen lakes in trek of 1951-52 from Sherridon to Lynn Lake, Man.

Canadian National

Discovery of oil near Edmonton, in 1947, excited the whole world.

railroads—the 11-mile Alma & Jonquieres and the 29-mile Roberval & Saguenay. The first services its power plant development, the latter connects its mill with deep water transportation in Ha! Ha! Bay.

Sudbury, Ont., site of the International Nickel Company refinery and the Frood mine, produces from 85 to 90 per cent of the free world's supply of highly strategic nickel.

The whole complex of combination gold and base metal extraction and refining activities in the Abitibi region of northeastern Ontario and western Quebec depended for its origin and growth upon the construction of pioneering developmental railways. The region is served by the Ontario Northland, projected northward some 254 rail miles from North Bay in the early 1900's, and by the National Transcontinental line of the CNR, which was completed in 1915 as a northern link between eastern and western Canada. In the early stages of exploration about Rouyn and Noranda, CNR people came to the conclusion that the area had important possibilities as a producer of precious and base metals. This conclusion found expression in the construction of a 45-mile branch, from Taschereau on the National Transcontinental, to Noranda, in 1927. Rouyn-Noranda soon became established as one of the leading mining areas in Canada.

It soon became evident that exploitation of this mineral belt would be greatly aided and accelerated by the provision of additional rail facilities. To this end the CNR obtained, in June 1936, authorization to construct the 101-mile Senneterre-Noranda loop. It was opened for traffic between Senneterre and Val d'Or in November 1937, and between Val d'Or and Noranda in December 1938. The area has lived up to all expectations. In the period from 1927 to 1949 inclusive, its mines have produced an output valued at $823,286,536.

Now boom towns "old" in comparison to Lynn Lake —places like Kirkland Lake, Porcupine, Val d'Or, Bourlamaque and Rouyn—are still producing and absorbing increasing quantities of freight traffic, as growing gray banks of mine wastes engulf the forest of scrubby pine and dark black pools of the shield, and shafts go down into the earth beyond the mile mark.

Around Thetford, in the eastern townships of Quebec, along the Quebec Central (CPR affiliate) is produced two thirds' the world's asbestos output. Production of asbestos in Canada is constantly increasing (1951 was 10 per cent over 1950) and new diggings are opening up, including a development in Ontario which is expected to require considerable investment in railroad facilities.

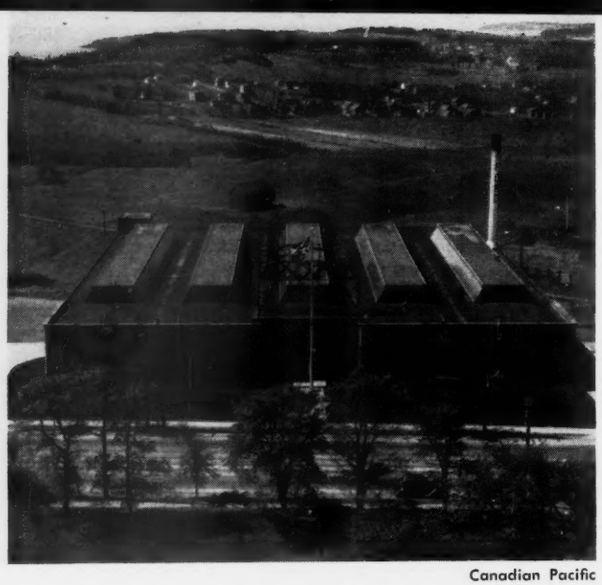
Third in rank of extractive segments of the Canadian economy is lumbering and allied industries. British Columbia is the greatest source of lumber for construction. The forests of Ontario and Quebec supply half the world's newsprint. Three of every five newspaper pages are printed on Canadian paper. The U. S. gets 80 per cent of its newsprint needs from its northern neighbor. A total of 96 mills produce pulp, of which a majority also manufacture paper. An additional 26 mills produce paper only.

Both pulp and paper mills make extraordinary demands upon railroad transportation. Forest products account for 11.3 per cent of Canadian railway tonnage—almost twice the U. S. proportion. Pulpwood alone accounts for 3.9 per cent, and woodpulp (en route from mills to paper makers) comprises another 1.8 per cent of total Canadian freight (on U. S. roads, 1.5 and 0.5 per cent, respectively). One of the finished products—newsprint paper—constitutes 3.5 per cent of the Canadian

Canada Year Book

The Canadian, or Laurentian, shield, covering more than half of Canada, "is a hitherto unopened jewel box, to which the railways have the key."

Ample water power on Saguenay river attracts bauxite from British Guiana to Arvida, in northern Quebec, where the Aluminum Company of Canada produces one-quarter of the world's supply of aluminum.



Canadian Pacific

This branch plant and warehouse of Ford Motor Company at Saint John, N. B., is typical of the new peripheral industrial growth about even the older cities of Canada.

roads' load (compared with 0.4 per cent on U. S. roads).

Processing facilities are highly concentrated; sources of supply are generally more distant than is the case with mills in the U. S. Pulpwood regularly moves by rail, for example, to Windsor Mills, Que., from as far as 1,800 miles distant. As the paper mills eat up the supply of wood, extraction is bound to be pushed further into the wilderness, requiring the building of new railway access lines or strengthening of light-duty pioneer branches. As much as a third of the known productive forested land of Canada is now inaccessible for profitable exploitation. It contains much valuable timber which railroads, some day, will open up.

While the extractive industries are booming, Canada's manufacturing is increasing at the same rate, or faster. As a result, the country's economy is coming into better balance. Manufacturing output now accounts for half of the net value of industrial production of all types.

Manufacturing Activity

While the relation of this kind of growth to railroads cannot be isolated, instance by instance, as in mining and processing development, it does show up in increased traffic around the larger cities and in a higher proportion of "manufactures and miscellaneous" in railroad freight tonnage. (This category of freight in 1950 accounted for 32.7 per cent of freight tonnage, compared with 30.5 per cent in the U. S.)

The older established cities—Montreal, Toronto, Hamilton, Winnipeg and Vancouver—are enjoying an almost unprecedented boom in new plants—chiefly around the periphery. Many of the new facilities are branches of U. S. firms. Others are new companies manufacturing commodities which Canadians used to import. The factory boom is requiring large expenditures by the railways for new access lines, additional industrial switching yards, new belt lines and new classification yards.

One of the most significant aspects of Canada's manufacturing boom is the process of "integration," by which original enterprises in pure extraction of natural resources expand into manufacture of by-products, which, in turn, become main products, and so on, in a seemingly endless process.

Take the discovery of oil, and of additional beds of natural gas, in the Edmonton (Alta.) area within the past six years.

The importance of the oil boom to the railways is rather that the availability of oil and gas in Alberta (and a neighboring strip of Saskatchewan) is attracting large new industries which are important railroad customers. Edmonton's population growth (up to 60 per cent over 1939 and 15 per cent in the past three years) does not result wholly from an influx of well drillers. Edmonton is becoming one of the new chemical centers of the world. In addition to oil and natural gas, Alberta has salt, coal and sulphur—which underlie the chemical and plastics industry.

Foreign Trade Important

In general, a country which is a heavy importer and exporter of goods requires more long-haul heavy transportation within its own borders than one which is more dependent upon its internal markets. In a country like Canada, the ports of entry and export are unusually distant from the producing and consuming areas. From 30 to 40 per cent of the economy of Canada is dependent upon foreign trade. Between 1919 and 1939, exports of commodities and gold constituted, on the average, 21 per cent of the gross national product: for the years 1946 to 1951, inclusive, the average was 19.7 per cent. There continues the overriding importance of a few main export commodities — newsprint, lumber, base metals and wheat. All of them are heavy users of long-haul railroad transportation.

The trend is toward increased trade with the U. S. Before World War II, 40 per cent of the country's exports went to the United Kingdom; 37 per cent to the U. S.; and 23 per cent elsewhere. In 1951, the percentage going to Britain had fallen to 16 per cent, while that to the U. S. had risen to almost 60 per cent. This relative shift southward, of course, took place while total production rose rapidly. Hence, while export movements through Montreal, the Maritime ports and Vancouver are still great, cross-border freight traffic interchanged "on wheels" with the U. S. roads has increased very largely, requiring the upgrading of railroad facilities which once were sufficient for the lighter traffic of yesteryear. International railroad freight traffic moves across the border at 48 separate points.

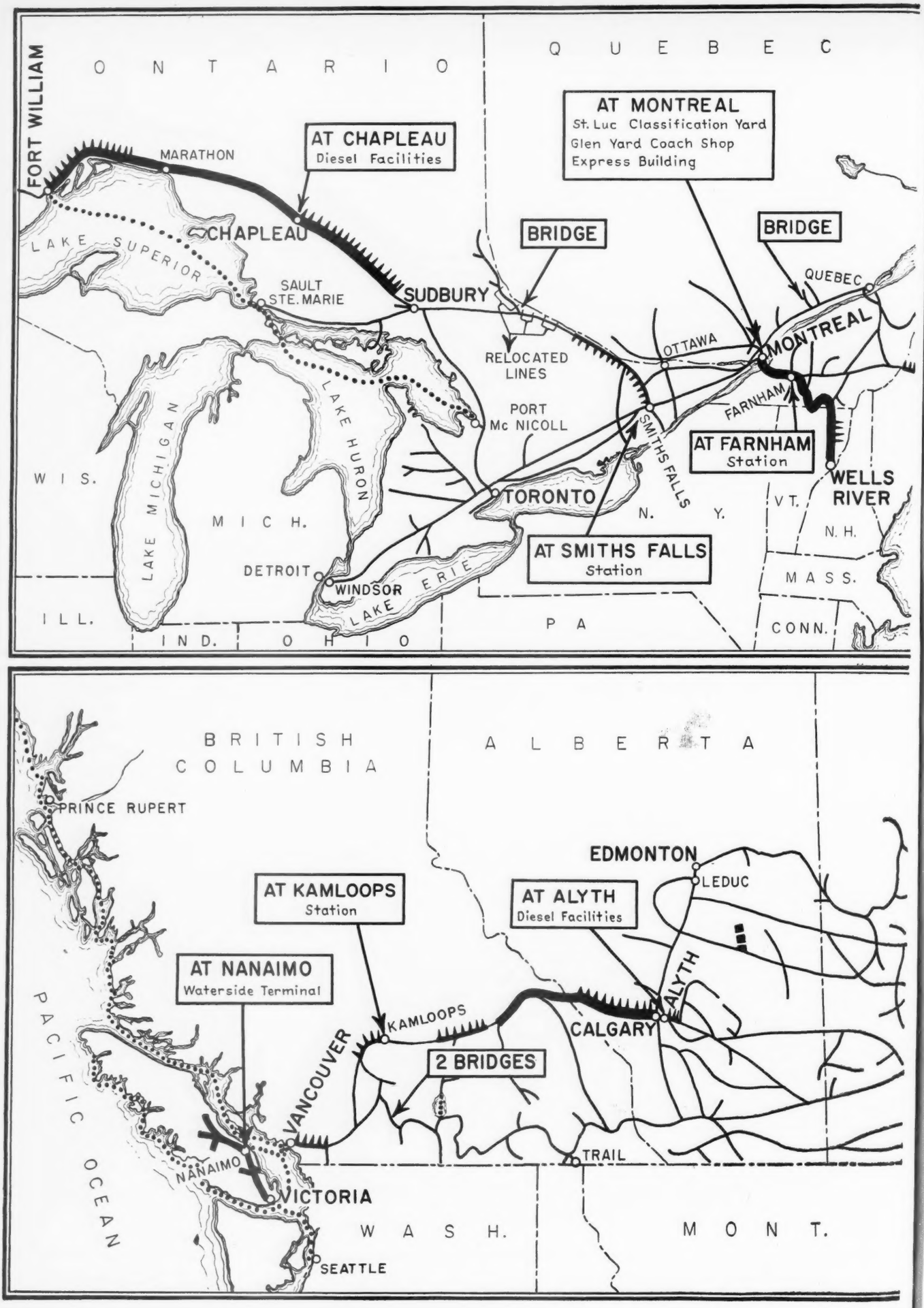
Completion of the CPR in 1885 as Canada's first transcontinental was a part of the government's bargain to get British Columbia into the confederation. This train is in the territory of the famed spiral tunnels near Field, B. C.

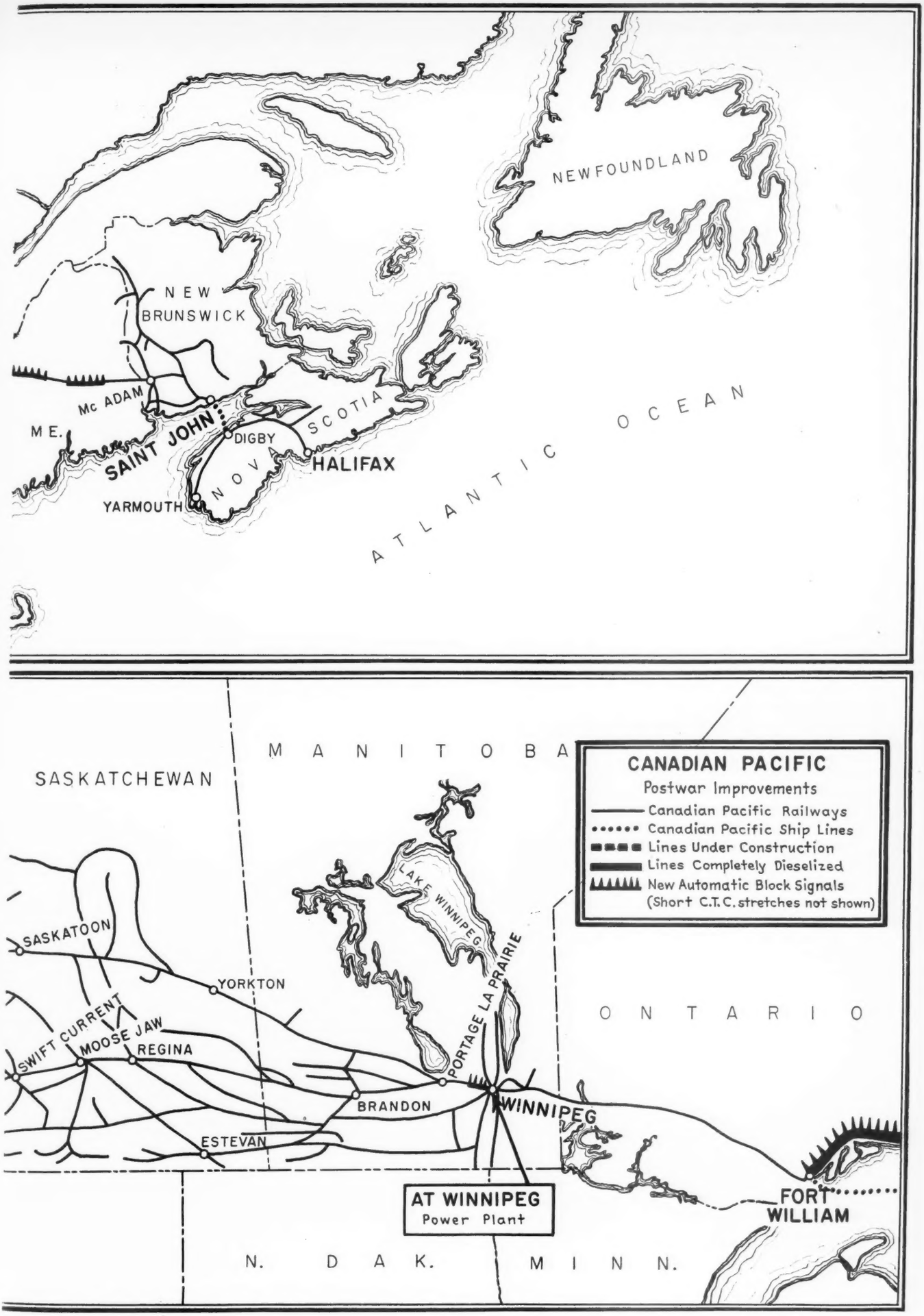
The Canadian Pacific . . .

Private Bulwark of Canadian Economy

As the "world's largest travel system" the Canadian Pacific Railway Company has many faces. Speak about the entire civilized world: you can't ignore an operator of railways, air lines, hotels, communications, express, steamships and irrigation systems with more than 100 agency offices outside Canada—including representatives in 28 American cities in 20 different states; a European general manager at London, England; and traffic managers at Hong Kong; Sydney, Australia; and Auckland, N. Z.

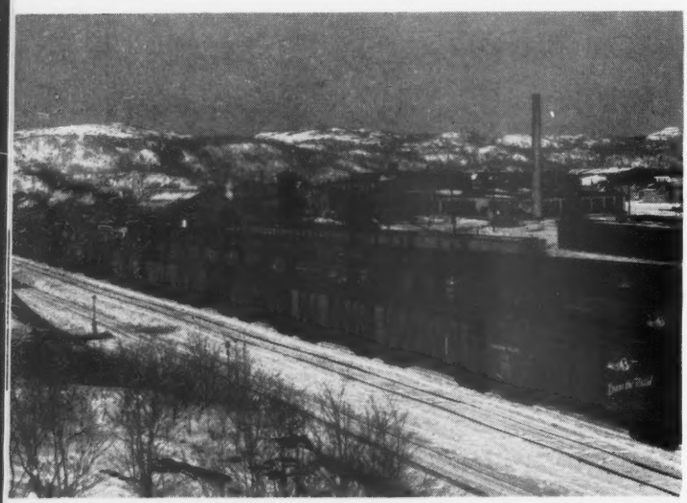
Bring up the British Empire, and there comes at once to mind the famed "all-red" communications and transportation route in which the CPR provides a major and indispensable link. The "all-red" route of steam-


ONTARIO
QUEBEC
FORT WILLIAM
MARATHON
AT CHAPLEAU
Diesel Facilities
AT MONTREAL
St. Luc Classification Yard
Glen Yard Coach Shop
Express Building
CHAPLEAU
LAKE SUPERIOR
SAULT STE. MARIE
SUDBURY
BRIDGE
BRIDGE
QUEBEC
MONTREAL
OTTAWA
RELOCATED LINES
PORT Mc NICOLL
FARNHAM
AT FARNHAM
Station
SMITHS FALLS
WELLS RIVER
TORONTO
LAKE HURON
LAKE MICHIGAN
WIS.
MICH.
N. Y.
VT.
N. H.
MASS.
CONN.
AT SMITHS FALLS
Station
DETROIT
WINDSOR
LAKE ERIE
ILL.
IND.
OHIO
PA
BRITISH COLUMBIA
ALBERTA
PRINCE RUPERT
EDMONTON
LEDUC
AT KAMLOOPS
Station
AT ALYTH
Diesel Facilities
AT NANAIMO
Waterside Terminal
ALYTH
KAMLOOPS
CALGARY
VANCOUVER
2 BRIDGES
PACIFIC OCEAN
NANAIMO
TRAIL
VICTORIA
WASH.
MONT.
SEATTLE


NEWFOUNDLAND
NEW BRUNSWICK
Mc ADAM
ME.
SAINT JOHN
DIGBY
NOVA SCOTIA
HALIFAX
YARMOUTH
ATLANTIC OCEAN
MANITOBA
SASKATCHEWAN
CANADIAN PACIFIC
Postwar Improvements
Canadian Pacific Railways
Canadian Pacific Ship Lines
Lines Under Construction
Lines Completely Dieselized
New Automatic Block Signals
(Short C.T.C. stretches not shown)
LAKE WINNIPEG
SASKATOON
YORKTON
SWIFT CURRENT
MOOSE JAW
REGINA
PORTAGE LA PRAIRIE
ONTARIO
BRANDON
WINNIPEG
ESTEVAN
AT WINNIPEG
Power Plant
FORT WILLIAM
N. DAK.
MINN.

Building of busy pulpmill towns like Marathon, Ont., in raw wilderness along the forbidding northern shore of Lake Superior . . .

. . . has changed the Schreiber division from a "bridge" line to an important originating and terminating district. Here are the yards at Schreiber.



The subsidiary Esquimalt & Nanaimo is girding itself to handle greatly increased lumber, pulp and mineral traffic on booming Vancouver Island. The road was wholly dieselized in 1948.

ships in both oceans, linked by transcontinental railway across Canada, and transcontinental telegraph tying in with transoceanic cables furnished, before long-distance airplanes and wireless, the only means by which Her Majesty's subjects could reach around the world, to all dominions and possessions, without using facilities outside the empire. Remembered also must be the CPR's extraordinary contribution to the common effort in both world conflicts. In World War II, all of its ocean vessels and two of its coastal vessels were placed at the disposal of empire forces. Twelve of them were lost, ten by direct enemy action. Two additional vessels were taken over permanently by the British Admiralty.

If you are talking about the United States, there come to mind certain other facts:

That, at the end of 1951, more than 48 per cent of the ordinary stock of the CPR was owned in the U. S.;

That 145 miles of the main line of the CPR run through Maine, on the short route to one of Canada's "winter" ports, Saint John, N. B.;

That an additional 3,795 route-miles of railway in the U. S. are owned by companies controlled by the CPR. These comprise the Aroostook Valley, the Soo Line, and the Duluth, South Shore & Atlantic;

That, of the company's total purchases of $192 million in 1951, some $12.4 million comprised equipment, materials and services obtained in the U. S. (compared with $5.8 million in the United Kingdom);

That CPR revenues from railway freight traffic from, to, or between points in the U. S. increased fourfold in 1951 compared with 1939, and are continuing to rise at an extraordinary rate;

That the build-up of U. S. defenses in Alaska during World War II and joint U. S.-Canada defenses in British Columbia and the Yukon depended upon the CPR and the Canadian National as rail links to Edmonton and upon the Northern Alberta railways, jointly operated by the two, as the sole mass mover of men and materials to "take-off bases" for the Alaska highway; the string of air fields of the Northwest Joint Defense Air Route; and the Canol oil pipe line;

That U. S. forces depended upon the pioneering north-south air routes of Canadian Pacific Air Lines to furnish speedy transportation beyond the railheads; and

That coastal steamships of the CPR and CNR also constituted a vital route for the build-up of Alaska's defenses via Skagway.

But it is as a catalyst of the Canadian economy itself that the CPR is here under consideration. Taking account of its properties within the borders of the country alone, the CPR is easily the second largest enterprise, next to the government-owned CNR, and the largest business in the country which is privately owned. In railway enterprises alone, its net investment is now well over $1.1 billion. More than 90,000 employees in Canada were on the company's payroll in 1951. Total purchases in Canada that year amounted to $174.2 million.

Bulwark of Economy

In recent months CPR stock has been selling at the highest prices since the record year 1930, when it was so popular and so high in value as to warrant a four-to-one split. Intense activity on the New York exchange was characterized by the New York Herald-Tribune as "a reflection of the company's position as one of the bulwarks of the Canadian economy."

This role as "bulwark" is one about which the CPR has always been self-conscious, despite its status as a private enterprise, with clear obligations to earn a profit for numerous wide-scattered stockholders. From the very beginning, the CPR was an instrument designed to carry out specific government policies, even though almost all of the capital for its present plant came from private investors. Building of its transcontinental line—the first in Canada—was the result of a solemn agreement between Canada and the then-separate colony of British

A majority of the world's asbestos comes from a district around Thetford, Que., served by the Quebec Central, a CPR affiliate.

Columbia. The 3½ million people (only 23,000 of whom lived west of Lake Superior) comprising the population of Canada at the time of its building were too few for so great an undertaking on commercial grounds alone; construction of the road was part of the bargain by which British Columbia came into the Confederation in 1871.

The status of the railway as a "bulwark" is reflected in the importance and character of its board of directors which, since 1890, has been preponderantly of Canadian origin, representing the top banking, industrial and commercial interests of the country. In the election of these men to membership on the board, and on the road's powerful executive committee, there has been demonstrated a sense of responsibility to the whole Canadian economy which is remarkable for a private institution.

Funded debt of the CPR, at the end of 1951, was $99 million—compared with $335 million in ordinary stock: $137 million in preference stock (4 per cent, non-cumulative): and $361 million in perpetual, four per cent consolidated debenture stock (of which $68 million is pledged as collateral for other obligations). Proportionately low as fixed interest debt has been during most of the company's history, its management has been highly successful in reducing it still further. Through retirements of debt, refundings at lower rates of interest, and as a result of appreciation of the Canadian dollar in terms of sterling, fixed charges accruing in 1951 were down $14 million from the high point of $26.8 million in 1938. They were $541,000 less than 1950. During the program of debt reduction, the company continued to maintain a strong working capital position.

Pioneering Activities

In contrast to most U. S. railways, which stopped growing in mileage and started shrinking about 1920, the CPR has greatly increased its line mileage during the past three decades, both by new construction and by purchase. From 13,093 route miles operated in 1922, the system increased to a high of 17,240 miles in 1936, since which it has declined slightly to 17,009 miles at the end of 1951. Nevertheless the increase in line mileage in the latter year, compared with 1922, was 30 per cent.

CPR lake boat and rail extensions into the Okanagan valley of British Columbia are largely responsible for the emergence of that once remote area as the principal fruit-growing area of Canada, and an important all-year vegetable-producing section in addition. The northern part of the valley is served by a branch to Kelowna south from the main line at Sicamous, by an extension barge service on Lake Okanagan, and by CPR truck. The building of the Kettle Valley line opened up the central part.

Development of the booming southern section of the valley has been sparked by successive extensions. First a rail link was pushed from the Kettle Valley line to so-called Dog Lake, with barge service thereon to Okanagan Falls, thence a railroad of 17 miles to Oliver. Development of the Kaleden area made it necessary to build a railroad around the lake, linking the two rail segments. Finally, in 1935, authority was obtained for a further extension of 9.5 miles from Oliver south to Osoyoos, on the U. S. border. Depression and war postponed the project, but in 1945 the first train ran through to the new terminus.

In November 1950 the company entered into an agreement with the Alberta Coal Company providing for construction of a 14-mile branch from a junction with the CPR near Halkirk, Alta., to serve new mines. In November 1951 the CPR established a new, extra-fast freight and passenger steamer service, on a weekly basis, between Vancouver and Prince Rupert, chiefly to meet the demands of an aluminum project at Kitimat, to be the world's largest. Its subsidiary air line is a prime example of pioneering, with north-south routes bringing fast transport of men, materials and mail to vast areas of the "new north" formerly lacking modern transport of any description. These former "bush routes" are classic examples of high-grade movement by plane, on a commercial basis, where traffic is too small to warrant large expenditures for surface facilities.

The CPR is still a development road. Its management keeps its ears to the ground in the boom areas, studying constantly the need for additional service and facilities on lines already built, but operating hitherto on the minimum service basis which thin traffic warranted.

A detailed study is now under way of passenger,

mail, and express service on branch lines serving areas of unusual population growth.

Coming under scrutiny are such points as Nipawin, in north central Saskatchewan, located on a "loop" line 92 miles east of Prince Albert, and 131 miles north of Goudie, junction point with the most northerly CPR transprovincial line. There are no passable highways in the region. From a small settlers' village, Nipawin has suddenly become a booming center for seed farming. Three large central banks have just established branches there—a sure sign of good future prospects.

Traffic Build-Up

More important than route extensions or additional services to dramatic boom areas, however, is the CPR's role in readying itself to transport the constantly, and rapidly, increasing traffic of a whole country now undergoing an unprecedented, broad-based development.

It is noteworthy that the CPR has an unusual status in Western Canada (i.e. west of Port Arthur) where, as "new" country, the rate (though not the absolute amount) of growth is greatest. Two thirds of the mileage of the Canadian National lies in eastern Canada and, because of its absorption of the venerable Grand Trunk, this road earlier reached more of the industrial area of Ontario and Quebec. In contrast, two thirds of the route-miles of the CPR lie in Western Canada, where, as the first transcontinental, it has strategic access in cities like Regina and Moose Jaw, Sask.; Calgary, Alta.; and Vancouver and the fruit and mining, smelting and lumber areas of British Columbia.

In its submission to the most recent Royal Commission on Transportation, the CPR stated: "While the era of branch-line construction which ended in the late 1920's is not likely to recur, the CPR has a continuing need for funds to enlarge and improve its property in keeping up with changing conditions." It took note that the population of Canada is increasing at the rate of about 300,000 persons a year; that, over the long-term, CPR traffic averages about 1,500 ton-miles for each person each year; and that, on this basis, the railway is faced with a potential annual growth in traffic of 450 million ton-miles each year. (This is based on population growth alone—not taking into account the greater production and consumption per capita which is the current trend.)

Ton-miles hauled in 1951 were up almost 17 per cent over 1950 and were the greatest in the history of the company, except the war years 1944 and 1945. Tons carried were up more than 12 per cent, and were at an all-time high. Freight traffic volume, in terms of *gross* ton-miles, was up more than 13 per cent in the first quarter of 1952, compared with 1951, showing a continued high upward trend.

The nature of Canada's development, by which industry pairs up with mining to exploit the natural resources of the country, is reflected in the fact that "mine products" and "manufactures and miscellaneous," respectively, comprised considerably larger portions of total freight traffic in 1951 than they did in the twenties.

Beyond the mere statistics of system traffic growth, the story of the development of extractive and manufacturing industries in the areas served by a railway system so far-flung as the CPR can be told only by selected samples.

A commodity showing unusual increases in tonnage is newsprint—Canada's biggest export to the U. S. Much of this tonnage has long originated on the CPR in the region between Ottawa and Quebec (city). But the area of exploitation is constantly expanding, and, as stands of timber near rivers are exhausted, railway transportation for moving out timber becomes more important. Further, with the widening of the source of pulpwood and the economic pressure to centralize mill operations in huge plants, rail hauls of pulpwood are expanding to unprecedented mileages.

This trend is producing particular impact on the 511-mile Schreiber division of the CPR, extending on the main transcontinental line from Cartier to Current River (two miles east of Port Arthur, Ont.). Once thought of as unproductive, this single-track stretch, entirely without branches, runs through the heart of the wild, sparsely populated Laurentian shield and along the inhospitable north shore of Lake Superior. William C. Van Horne, builder of the CPR, called the latter stretch "200 miles of engineering impossibilities." It was built simply to connect eastern with western Canada, without thought of local traffic. Prior to the newsprint boom, stations on the entire division never produced as much as $20,000 of freight receipts a year. Now their outbound billing alone runs in the millions. The division once easily handled its small local carload traffic by stopping through freights. Now runs have to be started out of Schreiber, primarily for the purpose of setting out and picking up cars at huge paper and pulp mills newly established along the shore of the lake.

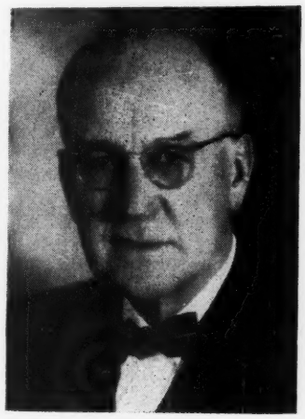
Mills and Townsites

For some 15 years two substantial pulp and paper plants have been located on the division, in what is known as Canada's "cold spot," between White River and Schreiber—the Ontario Paper Company, at Heron Bay, and the Brompton Paper Company, at Red Rock. Since the close of the war an additional $80 million have been spent in developing mills and townsites along this stretch. One development is a $30 million sulphite mill and modern planned town at Marathon. Terrace, eight miles east of Schreiber, was only a passing track, with a population of zero, when the decision was made at the close of war to build a pulp mill there. Now more than 300 homes, in a planned development, fringe the lake shore, about a new streamlined station built by the CPR. Plant and townsite cost $50 million. Both plants were built in raw wilderness, in an area utterly devoid of roads. While water transport is utilized in part for the outbound movement of sulphite pulp to paper mills, the CPR brings in all supplies and raw materials including large quantities of coal, and a large proportion of the pulpwood.

Great expansion of the lumber and pulp industry is also proceeding on Vancouver Island, the greater part of which is served by the subsidiary Esquimalt & Nanaimo railway, which is connected with the mainland by CPR car ferries and mixed passenger-cargo-automobile steamers. Going into production this summer at Duncan Bay is a new newsprint plant expected to produce 240 tons of newsprint a day. This is part of a planned wood products center to cost about $40 million overall. Already started is a second unit—a sulphate mill (or kraft mill). Equipment and materials for the plants on this 1,339-acre site are moved in by CPR car barge. Duncan Bay will also be a point of call for the new revised steamship service between Vancouver, Kitimat and Prince Rupert.

Four miles west of Castlegar, B. C., on the Crowsnest-Kettle Valley line, along Lower Arrowhead lake, Columbia Cellulose Company (a subsidiary of Cellulose Corporation of America) is planning to start, in 1953, a completely integrated forest industry, including timber

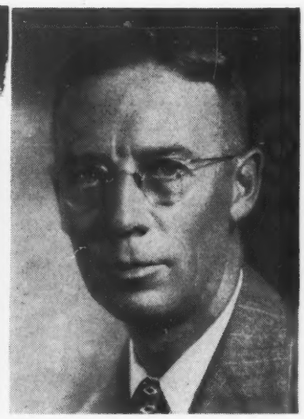
Top Management of Canada's Largest Private Concern, And "Bulwark of Its Economy"



G. A. Walker, Q.C.
Chairman

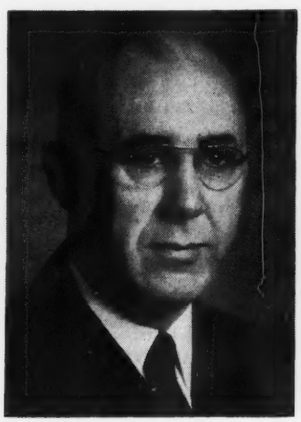
W. A. Mather
President

N. R. Crump
Executive Vice-president



F. C. S. Evans, Q.C.
Vice-president—Law

G. H. Baillie
Vice-president—
Eastern Region



W. Manson
Vice-president—
Pacific Region

D. S. Thomson
Vice-president—
Prairie Region

E. A. Leslie
Vice-president and
Comptroller

C. E. Jefferson
Vice-president—Traffic

B. W. Roberts, O.B.E.
Vice-president—
Purchases and Stores

D. I. McNeill, Q.C.
Vice-president—Personnel

L. B. Unwin
Vice-president—Finance

growing, cutting, and semiprocessing for shipment to the east for chemical manufacture. The company has applied to the province for forest development rights covering some three million acres in the Columbia River watershed. Its group of mills would employ 2,000 people, more than doubling the present population of the Castlegar district. Included would be a mill producing 400 tons a day of bleached and semibleached sulphate pulp and a ground wood mill with a daily capacity of 275 tons of newsprint.

A portion of the processed pulp would be shipped to a new $50 million cellulose fiber plant which the Canadian Chemical Company is building at Edmonton. Construction of the Columbia group would involve additional electric power production by Conminco (a CPR affiliate), which is to supply the plant; relocation of some three miles of the CPR Kettle Valley line; and rail transportation inbound of virtually all pulpwood and raw materials, and outbound of all processed pulp and newsprint.

Mining

The world's largest asbestos deposits line the right-of-way of the CPR-affiliated Quebec Central for some 26 miles in southern Quebec, from Coleraine to East Broughton. This 75-year-old industry and the QC grew up together. The mines absorb more than 60,000 tons of coal a year and $3 million worth of additional supplies. Their production—which ran to 81,000 tons in 1950, compared with 30,000 in 1939—moves out to every part of the world except Russia, South Africa and southern Rhodesia, which have local sources of supply. These shipments are funneled through Sherbrooke to Montreal and the west; via Megantic and Maine to Saint John for export east; to Vancouver for export west; and via Wells River, Vt., or the Windsor-Detroit gateway for movement to the U. S., the biggest customer.

Coal mining is constantly increasing along the CPR. Bituminous, lignite and subbituminous are located along its lines in Saskatchewan, Alberta and eastern British Columbia. Increasing industrialization of the West is shooting up the demand for their production, despite the finds of oil and rapid growth of oil refining in Alberta and western Saskatchewan.

The latter "boom" is, of course, the most spectacular of all the aspects of Canada's recent development. While the Turner Valley well (drilled on CPR land) came into production before the war, the strike in the Leduc wheat fields near Edmonton in 1947 first introduced Canada to real oil riches and to the prospect of filling not only its own needs, but of becoming a major exporter.

The CPR has holdings of mineral rights on more than 11 million acres of land—including all the large Alberta oil fields except Pincher Creek. At the close of 1951, more than 58,000 acres owned by the company were under lease to oil companies—including Imperial Oil, Gulf, Socony-Vacuum and Standard of California.

Because its directors consider that the company's best interests would be served by granting reservations and leases to those willing to undertake exploration and drilling over the wide areas involved, rather than engaging in the discovery or exploration of oil itself, the company deals with the oil companies as follows: Reservations for exploration are granted at a nominal annual acreage fee, with the stipulation that certain exploratory work be undertaken. When the latter indicates favorable prospects, part or all of the reservation is then placed on a lease basis embodying specific commitments as to drilling. For the lease, the railway obtains an annual rental. If a yield occurs, it gets, in addition, a percentage royalty. In 1951, rents, royalties and reservation fees from all lands produced $2.2 million, an increase of $221,000 compared with 1950.

Assisting Industry

Direct assistance by the railway to industry and agriculture is under the overall jurisdiction of the Department of Immigration & Colonization, which has a long tradition of "selling Canada" to the rest of the world and helping the rest of the world become Canadians. The far-flung agencies of the company, located in most of the major free countries of the world, are in unusually strategic positions to ferret out capital and manpower, of which Canada has an acute shortage in times of expansion. At the same time the penetration of the CPR "home" organization into the domestic economy of Canada is such that the department has access to unusually detailed knowledge about local conditions with which to assist foreigners seeking to locate businesses or go into farming in Canada, or to aid Canadians themselves in location and development problems.

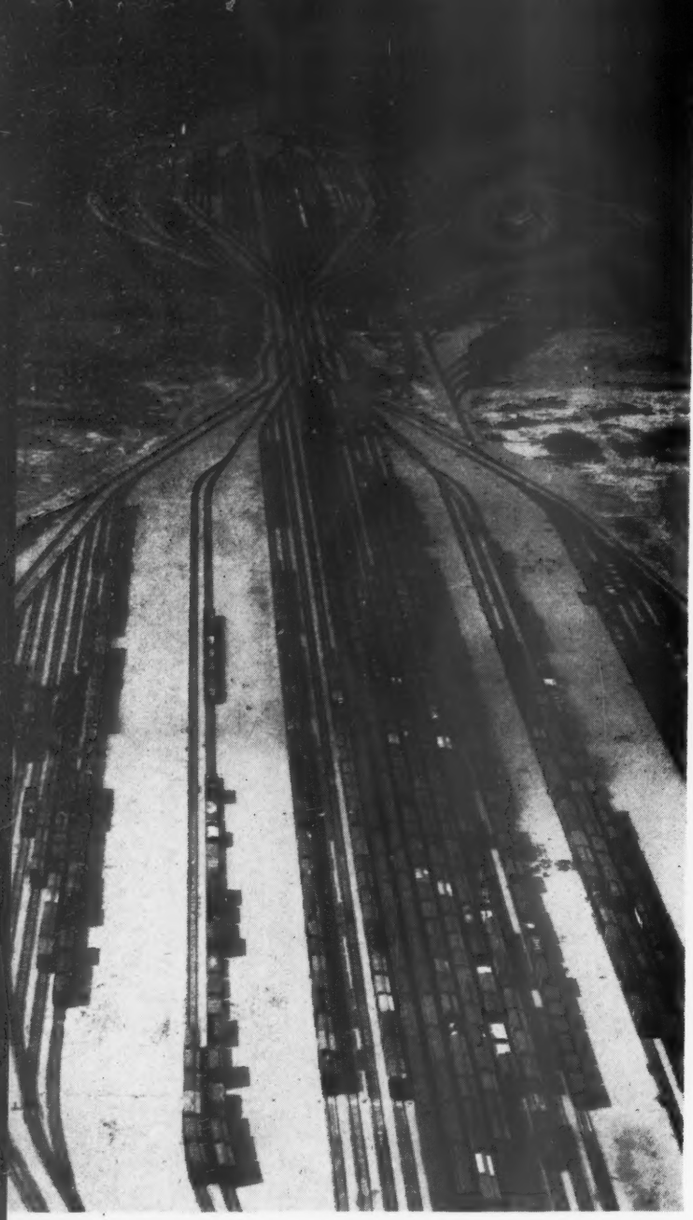
Thus, the road's Department of Industrial Development maintains a complete file on plant and warehouse sites, buildings, local power and water resources, labor supply and status, banking facilities, taxation and markets. Considered one of the most reliable and up-to-date "barometers" of economic activity in any area are its "Vacant Buildings Record" and "Industrial Land Record." The former is compiled periodically from questionnaire forms filled out by division officers of the railway, who utilize the information which agents and traffic men have about local conditions. During the six postwar years, 1946-1951, a total of 3,556 new plants, warehouses or other business facilities were located on, or adjacent to, the railway lines of the CPR in Canada. A total of 1,187 of the plants required access tracks and sidings.

The Development Section of the department assists industry in the other phase of its problem—the hunt for the cheapest and best sources of raw materials. In this endeavor it plays the role of "go-between"—it finds customers for the producers of raw materials and helps industrial consumers find adequate sources. To do this it employs a staff of trained mineralogists, water resource experts, forestry specialists, etc., who work with a complete file of the resources of the country at hand.

Altogether, the Industrial Development department offers the services of 40 trained men. These include an industrial manager, development commissioner and assistant, an industrial agent, a traveling industrial agent, and an industrial surveyor at the Montreal headquarters. Field offices are maintained at Toronto, Ont., Winnipeg, Man., Calgary, Vancouver, B. C., and London, England. Other foreign agencies of the railway are, of course, ready to assist prospects by getting them in touch with the development staff.

As a major carrier of grain and other agricultural products, and as the railway which opened up the Canadian West, the CPR is noted particularly for its aid to farmers and ranchers. Among other "firsts," the railway claims to be the first carrier in the world to operate cheap "harvest excursions" for long distances from the populated cities to prairie areas, to help fill the farmers' need for temporary help. The road was a pioneer in the establishment and operation of educational aids for growers and grazers, including lecture cars and exhibition trains. Every year since 1904, when the company's annual forecast of the western grain crop was instituted, it has been within a hairbreadth of the final count pub-

More tons of freight were carried by the CPR in 1951 than in any previous year in its history.



The $12 million St. Luc yard at Montreal, completed in 1950, is a "push-button" facility, with more capacity than all of the yards which it replaced as a classification point.

A major factor in the expansion of the country's remote "New North" are the 10,000 pioneering route miles of Canadian Pacific Airlines.

lished the autumn following by the federal government. Its accuracy arises from the fact that it is the considered appraisal of nearly 700 local railway agents, who go out and talk with farmers, elevator men and their neighbors; mix the result with their own practical experience; and lay an estimate on the line of which they need not be ashamed later.

Unlike the development departments of most railways in the U. S. today, the CPR's department not only gives continuing aid to established agriculturalists, but also busies itself still, on an intensive scale, with the selection, preparation, transportation, settlement and ultimate solvency of immigrants. A subsidiary of the department, the Canada Colonization Association, performs all manner of services for new settlers—including obtaining land and implements on easy terms. For colonization purposes alone it maintains offices at Winnipeg, Regina, Edmonton, Calgary and Lethbridge.

Specifically for the administration of lands owned by the CPR—as distinct from general aid to agriculture and industry—there was organized in 1912 the Department of Natural Resources, administered by a special advisory committee, representing not only the Department of I. & C., but as well the two western regions of the operating organization, the executive department, and the legal department. To make productive and salable some 3 million acres in its land grant, which were deficient in moisture, the railway pioneered irrigation projects in the prairie country. By 1944, when most of its irrigation systems were sold or transferred to other authorities, it had built nearly 4,000 miles of canals, costing about $18 million.

In line with its policy to lay out townsites on all railway lines as they were constructed, nearly 800 towns were laid out by the CPR in the three so-called Prairie provinces. Expenditures by the CPR for immigration, colonization, land settlement, irrigation and other aids to the economy added up to more than $134 million by the end of 1951. Under this department also are administered the oil, gas, coal and other mineral rights cited in connection with the oil boom. At the end of 1951, the CPR still held almost 1.5 million acres of land, of which about 1 million were farm and pasture lands, and the balance timber lands and townsites. During the year itself, some 64 thousand acres of timber land and 40 thousand acres of farmland was sold off—the latter at an average price of $4.20 an acre.

Capital Improvements Program

In an address delivered about two years ago, N. R. Crump, operating vice-president of the CPR, declared that his railway is basically still the same railway as was planned and built 70 years ago, but "within this basic structure the railway's capacity has been increased to meet growth of traffic by providing improved standards of heavier rail, larger cars, more powerful locomotives and such other changes as were required to operate and service heavier trains and equipment. . . . The transition from past standards of service to new requirements has in general occurred during the past 18 years of depression and war. . . . Requirements for future rail service are set principally by new economic standards and competitive forms of transport."

To meet these requirements, Mr. Crump said, the railway was conducting studies and reviewing transportation bottlenecks and limitations. Improvements to the line would expedite operation of trains and terminal improvements would facilitate handling of traffic. Centralized traffic control, he thought, would obviate the necessity of building double-track lines in Canada.

Particularly intensive study was given to the capital program in 1949, at which time it was estimated that an expenditure of about $80 million would have to be made each year, for the five ensuing years, if the railway were to stay modern and keep pace with the country's growth. These urgent requirements reflected in part the interruption to normal improvements which occurred during the depression of the thirties and in the war years of the forties.

In this estimate it was figured that the replacement cost of worn-out rolling stock alone would be about $36 million each year, with $21 million more to be spent annually for new equipment to care for increased passenger and freight traffic. Since that estimate was made a further acceleration in the growth of the Canadian economy has occurred, and prices have risen still further, so that the railway's management is now setting its sights even higher for what it considers minimum essential capital expenditures for the remainder of the five-year plan.

Capital expenditures have a triple purpose: (1) to permit handling of increased business; (2) to make possible better service (i.e. faster, more comfortable, more damage-free); and (3) to save operating expenses. The weight-factor to be assigned to each of these goals is best illustrated by referring to testimony which Mr. Crump and W. A. Newman, chief of motive power and rolling stock, presented in the so-called "20 per cent freight rate case" in the first part of 1949. At this time the road was estimating urgent and minimum necessary expenditures of $75 million a year for the five-year period, 1950-1954. (This was the minimum if the railway were to take care of the requirements of public service, and falls short of the $80 million a year estimated for fulfilling less narrow requirements prepared and announced later in 1949.)

The CPR officers testified that at least half of the total of $400 million to be spent under the five-year plan would not involve operating savings, but would improve service and capacity (e.g. additional freight and passenger cars). In contrast, the $68 million estimated for dieselization (not including fixed facilities) would, when the whole program was complete, save about $14 million a year *before* interest and increased depreciation. Of the $136 million which would be invested in roadway and structures some $40 million could be classified as "ordinary improvements," without significant effect on operating costs, while $96 million would affect both service and costs—like new terminals and heavier rail. Gross savings on the $136 million would be about $13 million a year.

Thus, after the five-year program was completed, estimated gross savings of $25 million a year would be produced. From this would be subtracted $11 million a year in interest charges and $3 million in additional depreciation accruals—or annual net savings, after completion of the entire program, of $11 million, produced out of a five-year program of expenditure of $400 million.

Limitations of net income and availability of materials and manpower have affected the road's ability to accomplish, within each year, all of the improvements planned to carry out this long-range program. Nevertheless, in the six postwar years completed to date, 1946-1951, the railway has piled up significantly large expenditures of capital for new or improved plant, which are the principal reason why it can now play its full part in sustaining the Canadian boom.

Taking only "gross additions and betterments" charged to capital account, and not maintenance and replacements charged to operating expenses, these expenditures totalled $297.6 million during the six-year period, or an annual average of $49.6 million (including improvements to inland steamships, hotels and communications). Of the total expenditures, $208.3 million were for locomotives and cars and $76.1 million were for improvements to fixed railway properties.

GROSS ADDITIONS AND BETTERMENTS, POSTWAR YEARS, CPR

(In Millions of Dollars)

Year	Rolling Stock	Roadway	Total (incl. hotels, communications and inland steamships)
1951	49.6	22.3	75.0
1950	34.8	11.9	46.7
1949	44.6	11.3	60.3
1948	39.3	11.0	53.6
1947	26.0	7.1	34.3
1946	13.9	12.4	27.6
Total	208.3	76.1	297.6

For 1952, directors of the road have been asked to approve capital appropriations totaling $73.9 million—including $385,000 for coastal steamships, a category not included in capital improvement figures given for the 1946-1951 period. The 1952 expenditures, for which appropriations are sought, include:

Additions and betterments to stations, freight sheds, coaling and watering facilities and enginehouses	$3,550,763
Replacement and enlargement of structures in permanent form	898,734
Tie plates, rail anchors and miscellaneous roadway betterments	1,292,209
Replacement of rail in main-line and branch-line tracks with heavier section	1,424,656
Installation of automatic signals	1,692,440
Additional terminal and side-track accommodation	1,574,747
Additions and betterments to shop machinery	1,307,723
New rolling stock	57,296,130
Additions and betterments to rolling stock	1,932,670
Additions and betterments to hotels	644,058
Additions and betterments to communication facilities	1,525,166
Additions and betterments to miscellaneous properties	372,865

The appropriations for new rolling stock make provision for 50 diesel-electric units, 4,750 freight cars, 25 baggage and express cars, 25 express refrigerators and 390 work units. Important individual improvements projects started and or completed during the 1946-1951 period are shown on the accompanying system map of the CPR.

A sizeable portion of capital expenditures in recent years and for the future are in connection with dieselization. Suffice it to say here that the road has bought its last steam locomotive. But, since savings from diesels arise largely from intensive utilization, it is unlikely, because of the many light-traffic branches in the system, that it will be economical to change over entirely to diesels "for some years." Since proper use of diesels requires completion of suitable shops and service facilities before diesels are introduced on any particular section, the CPR program has taken the form of intensive dieselization of individual districts rather than spreading the new power over the system on the "cream runs."

Three such districts are now dieselized, plus the subsidiary Esquimalt & Nanaimo. One of the factors in their selection was to choose sections so located that diesel operation could be extended from both ends into normal steam territory if traffic fluctuated downward, and permanently extended when sufficient additional diesels are received. Selected sidings in these and other districts slated for diesel operation are being extended progressively. Construction of maintenance facilities on the territory between Calgary, Alta., and Revelstoke, B. C., is now in progress. At Nelson the road is planning the second largest diesel servicing facility in Canada, next only to the largest, just completed at Calgary.

At the end of 1951, the CPR had 232 diesel units in service. Of these, 42 units had been added in 1951, of

which 28 were assigned to the mountain territory between Calgary and Revelstoke. The 1952 appropriations cover some 32 diesel road units required to complete conversion to diesels in this territory.

New motive power added to the CPR roster during the six postwar years 1946-1951 comprised 204 diesel-electric units and 100 steam locomotives. Total locomotives owned by the CPR (excluding electric lines) at the close of 1951 comprised 1,664 steam locomotives and 232 diesel units, a total of 1,896 units.

In a recent speech Mr. Crump asserted that the industry may expect still further developments in diesels to reduce weight and size, lower fuel consumption and utilize less expensive fuels. He points to the development of the gas turbine, including one burning coal as prime fuel. "It is quite within the realms of possibility that within our time atomic engines may prove practicable and economical for commercial transportation."

A total of 18,147 freight cars were placed in service during the postwar period 1946-1951. The 5,024 new cars delivered in 1951 were the largest number installed in any year since 1929. Freight cars owned or leased by the CPR, at the close of 1951, totalled 79,031. On order as of May 22, 1952, were a total of 9,425 cars.

The road placed a total of 229 passenger-train cars in service in 1946-1951—a large portion of which were of the head-end type for mail, baggage and express, critically needed for a greatly increased business in small shipments. On order as of May 22 were a total of 75 additional passenger-train cars. Total ownership of passenger-train cars at the end of 1951 was 2,791 units.

Terminal Facilities

The Canadian boom is having the effect of requiring the CPR to make large expenditures on terminal and yard facilities. Not only does the systemwide traffic increase require higher capacities at focal points like Montreal, Toronto and Winnipeg; these and other large industrial centers are themselves growing so rapidly that new terminal facilities are required to handle cars of local origin or destination. The fact that the new industries are locating in new peripheral areas, not hitherto productive of railway traffic, makes the problem of new industrial switching yards and team tracks particularly difficult. Finally, in a boom, freight traffic not only grows, but shifts in emphasis. All-rail international traffic, for example, has grown disproportionately to the whole.

Adjustment to all three of these pressures is illustrated by the St. Luc yard, completed in the Montreal area in July 1950. Occupying 680 acres of land, with retarders and automatic "push-button" control of cars, St. Luc cost $12 million. It replaced a number of separate yards which have since been closed down as classification points. It has greater capacity and "put-through" than all of the former yards combined.

Besides the examination and reconstruction of terminal facilities, the long-range program of the CPR with respect to expenditures on fixed property contemplates the improvement of track standards through heavier rail; restoration and strengthening of embankments to permit heavier loads and higher train speeds; extensions of passing tracks to allow operation of longer trains without delays at meets; further installation of automatic block signals and the introduction of C.T.C. to increase line capacity; and installation of new methods of communication to expedite train movements and terminal handling. At the end of 1951, a total of 2,549 miles of main line had been equipped with automatic block.

The CPR is a great deal more than a railway. It is a complete travel system, a network of communications and a transportation company utilizing every form of transportation available—to extend, supplement and feed the railway which is the nucleus of its business and the preoccupation of its management. Some of these ancillary enterprises are operated directly by the railway company—like the hotels. Others are operated by companies with separate managements, but wholly owned and directed by boards comprising senior officers of the railway company. The latter include steamships, air lines and express.

In the midst of the greatest developmental period in the history of Canada, the CPR's vast properties and enterprises are more vital than ever. To measure their weight in the scheme of things is to repeat the laconic, but stirring statement made by Sir William Van Horne, after driving the last spike joining the new transcontinental, at Craigellachie, B. C., in 1885: "All I can say is that the work has been well done in every way."

Bench Marks and Yardsticks—18

M. P. Nelson, the Lackawanna's manager of baggage, mail and milk traffic, suggests an additional quality—which he calls "fraternity"—for inclusion in any "yardstick" for measuring the efficiency of a supervisory officer, or a department. With this suggestion, he enclosed a report to the recent meeting of the American Association of Baggage Traffic Managers by the association's fraternal committee.

This report points out that railroad properties have physical inter-connection, but that these physical facilities can perform their function only to the extent that the men, also, who do the railroading on opposite sides of the junction point, have effective contact with each other.

The truth of Mr. Nelson's contention isn't diminished any by the fact that it seems obvious—not infrequently it is just the most obvious things which are easiest to overlook. The primary importance of inter-railroad cooperation was discussed at some length in the leading editorial in last week's issue. There isn't any other industry in the country that needs as much inter-company cooperation as the railroads do—because the individual railroads work in combination as a national system of transportation, far more than they do as competitors against each other.

There's one question, however, that needs attention when "fraternity" is emphasized. That question is: Who is it that we're supposed to get fraternal with? There are, for instance, some traffic men (or specialists from any other department, for that matter) who are as fraternal as all get-out with people doing the same kind of work on other railroads, but who do not always feel so fraternally inclined toward the people in different departments, even on their own railroad.

The collaboration of railroad accountants with accountants on other railroads, and traffic men with other railroads' traffic men and so on, is indispensable. But it isn't a bit more praiseworthy or necessary than the collaboration of mechanical, operating, traffic, engineering and other departments on the same railroad. Sometimes it's harder to keep the fraternal attitude alive between departments than it is between the same departments on different railroads.

Mr. Nelson is right—the dependable practice of fraternity is an essential quality for the efficient functioning of any supervisory officer, or department.

Cominco—the CPR's Biggest Customer

How the railroad services its profitable affiliate—one of the world's biggest producers of lead, zinc, silver and fertilizers

The Consolidated Mining & Smelting Co. of Canada is the largest producer of base metals and of chemical fertilizers in Canada, and the biggest shipper on the Canadian Pacific, which owns about 51 per cent of its capital stock. In 1951, Cominco billed 2,250,000 tons of freight by rail. Its operations consumed 24,000 carloads of raw and semiprocessed material and produced 21,000 carloads of outgoing freight.

Cominco's great Sullivan mine at Kimberley, B. C., (the world's largest producer of lead and zinc) and its famed smelter at Trail, 201 miles distant, are linked by a transmontane route of the CPR, in an unusually close carrier-producer transportation relationship, as shown on the accompanying map.

Predecessor operations in this once inaccessible mountainous area of British Columbia, not far from the U. S. border, started with mining of a gold-copper lode at Rossland in 1890. In 1896 copper smelting started at Trail, to the north, connected with Rossland by narrow-gage railway. The chief outlet was by river boat on the Columbia and by rail connecting to U. S. roads at Spokane, Wash. In 1898, the CPR, however, built its Crowsnest line through the coal fields to Kootenay Lake and acquired the smelter at Trail and the short railways serving it. The next year it completed the standard-gage Rossland branch. In 1906 the CPR combined its smelter interests with a number of other mining companies to form Cominco.

Origin of the Sullivan Mine dates back to discovery in 1892 and the start of mining in 1896. But real development was not possible until 1900, when the CPR completed a 19-mile branch from Cranbrook, on the Crowsnest line. Use of a nearby smelter proved unsatisfactory, and the mine instead began to ship to Trail and other points. In 1909 Sullivan was optioned to Cominco, and bought the next year.

New methods of extraction of useful metals from the Sullivan ore brought the problem of by-product utilization. From this grew Cominco's present great chemical operations. In 1930 the company built, at Warfield, four miles from Trail, plants to produce ammonia, phosphoric acid, phosphate and sulphate fertilizers. Following World War II, Cominco bought from the government ammounium nitrate plants at Warfield, and at Calgary, Alta., and converted them to the production of fertilizer.

The Big Job

At Kimberley (Sullivan Mine), Cominco mines from 10,000 to 12,000 tons of ore a day. This is moved by plant electric railway several miles to a concentrating mill which produces 630 tons of lead concentrate and 720 tons of zinc concentrate a day. This daily tonnage of about 1,400 tons is then moved by the CPR over 201 miles of tough, up-and-down railroad, forged circuitously, in W-shape, along the north-south valleys intervening, to the great Tadanac smelter at Trail. To this service about 100 ore cars (the majority of 150,000- to 175,000-lb. capacity) are devoted at all times. The average carload of zinc concentrate is 158,000 lb.; that of lead is from 130,000 to 160,000 lb. Production at the concentrator is somewhat variable, but movement of concentrates to Trail averages one special train a day averaging 16 cars each. Consolidation-type steam locomotives, with tractive force of about 43,000 lb., are used as motive power.

At Tadanac, on the Columbia river, the CPR classification yard is smack in the middle of the smelter plant, for quick in-and-out service. In addition to the 1,400-odd

ONE END: Concentrator at Kimberley, B. C., handles ore from nearby Sullivan Mine (world's largest lead-zinc-silver producer) . . .

. . . OTHER END: Tadanac metallurgical plants at Trail, on Columbia river, produce about 10 per cent of world's supply of zinc and lead. Fertilizers come from nearby Warfield . . .

. . . THE LINK: The CPR moves 1,400 tons of ore concentrates daily over 201 miles of tough mountain railroad.

tons of Sullivan concentrates which the road puts into the plant on a daily basis, there are required, besides miscellaneous freight, the following large tonnages (daily average) of other raw materials:

Coal—440 tons, from the Crowsnest district to the east, near the Continental Divide.
Coke—250 tons, from the same origin.
Limestone—chiefly from Fife, Grand Forks, and Oliver, B. C.
Fuel oil—2,200 gal., from Alberta and British Columbia.
Phosphate rock—850 tons, from Cominco mine at Garrison, Mont., originating via the Milwaukee or the Northern Pacific.

The phosphate must be moved up out of the river valley to the chemical plant at Warfield, over a mile-long switchback, with a top rating of 220 tons for a 2-8-0 locomotive.

Trail is also a custom smelter. That is, it does work for other producers. Only about two-thirds of the concentrates which it absorbs come from Cominco's Sullivan Mine. The remainder comes from other mines in British Columbia and Washington, and points all over the world—as far east as Quebec, as far south as Peru and Chile; and as far west at Thailand. The imported ores are transshipped at docks and storage facilities of Pacific Coast Terminals Company, in which Cominco bought a 55 per cent interest in 1935. Located on deep water at New Westminster, B. C., the terminal is served by both the CPR and the Canadian National, and is completely equipped for handling both inbound and outbound freight by water.

Product Shipment

The output of Cominco at Trail requires plenty of railroad service, too—some of it of a highly specialized nature. Refined metals go to eastern Canada, the eastern U. S., and general export from both coasts. Shipments, on *daily* average basis, include:

Lead—450 tons, in pigs, in box cars, carload lots.
Zinc—450 tons, in slabs, in box cars, carload lots.
Silver—38,000 oz. in about 70-lb. bars by rail express, largely on a special commodity rate. It moves in a special set-out car to Nelson, thence to destination without change if carlot; otherwise is transferred into regular l.c.l. express movement. Many destinations, mostly special trade. As much as 600,000 oz. have been shipped at one time—to the mint. The CPR has never lost a bar in a half century of movement.
Gold—200 oz., by rail express.
Cadmium—1½ tons, by l.c.l. freight.
Bismuth—0.3 tons, by l.c.l. freight.
Antimony Products—8 tons, by l.c.l. freight.
Tin—1 ton, in carload lots.

Concentrated fertilizers are produced at Warfield. Some 1,500 tons a day is the average output. The phosphate products go out in paper bags and in bulk, in carload lots, largely to the Canadian prairies and nearby U. S. Nitrogen products move to the U. S. and via New Westminster for export, also in paper bags.

As the production at Trail has increased, the CPR has had to increase its service on the branch and on the Crowsnest-Kettle Valley line on both sides of Castlegar. Additional sidings have had to be constructed, from time to time, older passing tracks lengthened, and what were originally developmental railway routes brought up to heavy-duty standards.

The outlet to the west shows the same tough grade and curvature characteristics as the inbound ore route, as far as Ruby Creek, just west of the junction with the CPR main transcontinental line.

On the main line through to Vancouver much bigger trainloads are possible with the same power.

Freight outbound from Trail to the east formerly moved in such through and extra trains as were operated on the Crowsnest line. But increased production of the plants demanded more regular service. Now the CPR runs a so-called "Tadanac freight" every night (except Sunday) east out of Nelson, carrying metals and fertilizer to Lethbridge, Alta., and the east.

Car supply is a problem growing more difficult as the volume and versatility of Trail increase. Most inbound loads are in open tops, while virtually all outbound freight requires box or tank cars. Thus the railway has to work hard to get in enough empties to fill the need for about 37 cars a day outbound for fertilizer and chemicals and 20 cars outbound for metals. At times, during nationwide car shortages, Cominco has accepted empty livestock cars, and lined them with plywood, so as to move fertilizer to storage at New Westminster—just to keep it from clogging the plant.

At Calgary the company's ammonia and ammonium nitrate plant ships out a portion of its production as fertilizer, in box cars, direct to agricultural areas. The remainder is moved as anhydrous ammonia in tank cars over the mountains to Trail, where it is converted to ammonium sulphate and nitrate.

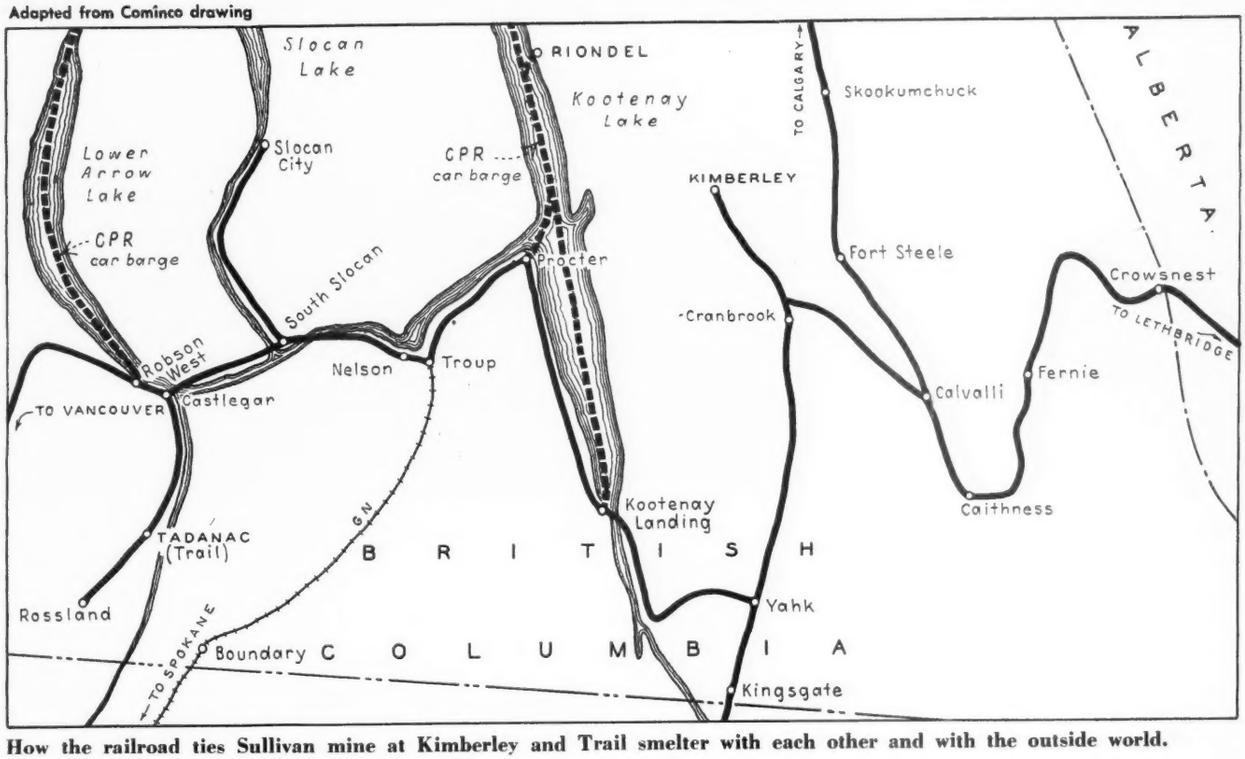
Demand for Cominco products is forcing heavy new investment for additional facilities. A $70 million expansion program is under way. In 1951 alone the company made net expenditures of almost $18 million on property, buildings and equipment—including a new phosphate plant at Kimberley; additions to the Warfield and Calgary plants; additions to Sullivan mine and mill; modernization of the smelter and additional electric power.

In April mine and mill operations started at the new Bluebell lead-zinc mine at Riondel, on Kootenay Lake, with initial capacity of 500 tons a day, 7 days a week. Initially, ore will be moved twice a week by CPR car barge service 12 miles south to its rails at Proctor, thence 64 miles to Tadanac over the route traversed by Sullivan ore. Ore cars will be loaded at the mine dock, as they stand on the barge, by crawler-type clamshell crane. They will be transferred to land rails at Proctor, where existing slip bridge facilities are adequate. (Years ago, there existed a gap in the main rail line, requiring a water transfer for all traffic via Proctor.)

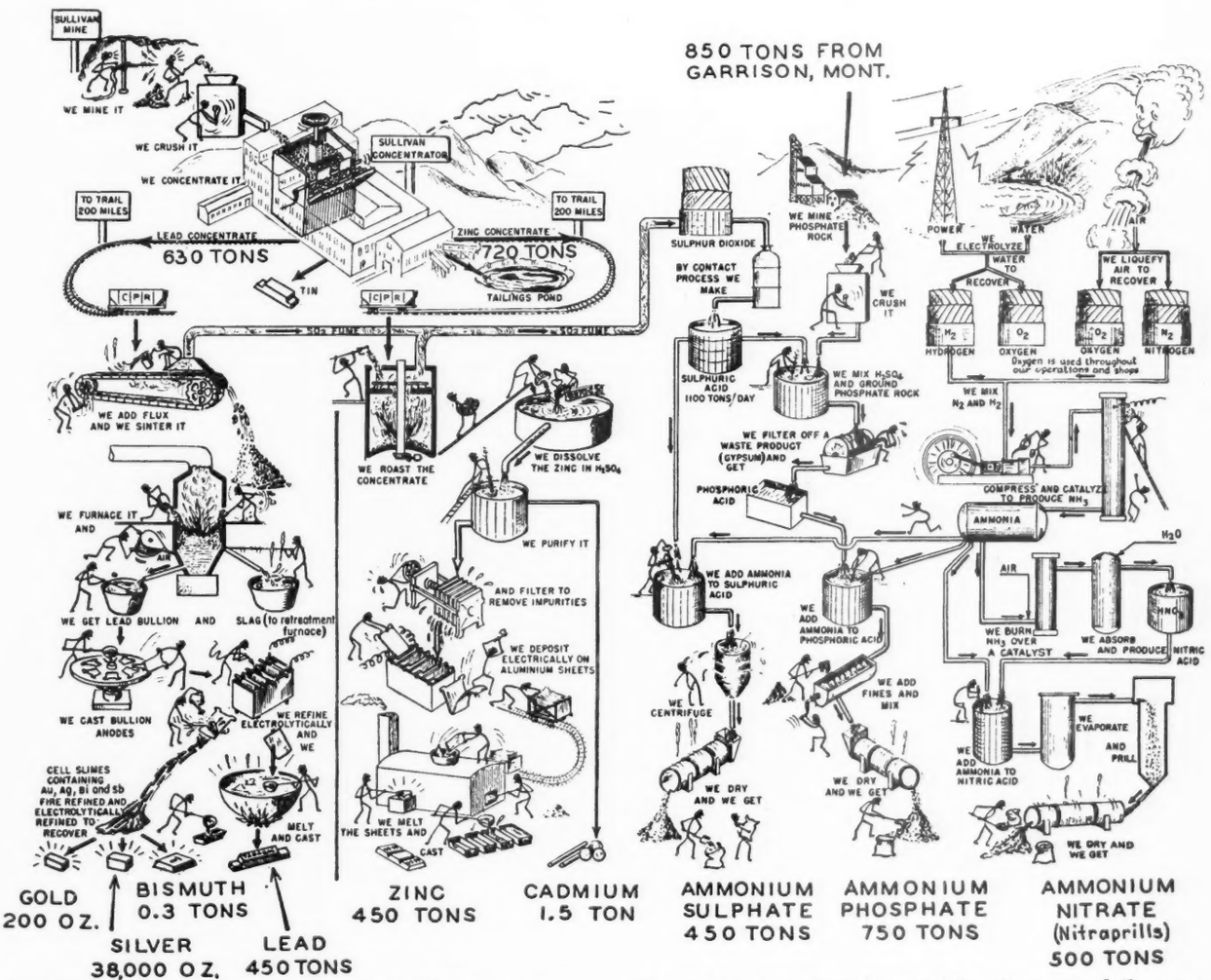
Among other wide-ranging explorations of Cominco are lead-zinc deposits at Pine Point, on the south shore of Great Slave Lake, in the far Northwest Territories. According to Cominco, feasible exploitation would require the construction of a railway some 400 miles long, taking off from the pioneering Northern Alberta Railways. Suggested junction points include Waterways, terminus of the Athabasca line, and Grimshaw, in the Peace River country.

"We are engaged in one of the most one-sided games ever played, called Safety—a game where no forward passes can be fumbled, no strike-outs can be called, no approach shots can be dubbed, no balls can be thrown down the alley as in other games. In our game, every participant must be conditioned and well coached. There can be no 'has beens' or non-conditioned players on our team, nor can there be any substitutes. Every player must be a 'money player,' playing the game to win and win only. . . . Safety cannot remain stagnant. It changes with the modernization of equipment and new practices and methods of railroad operations. It changes with new practices and methods in maintenance of equipment. It changes with all other departments and we must continually be alert to put safety ahead of all these changes. Safety is an everyday challenge and we must meet that challenge."—*From an address by F. B. Rykoskey, superintendent motive power, Central region, Baltimore & Ohio, at the thirty-second annual meeting of the Safety Section, Association of American Railroads.*

Adapted from Cominco drawing



How the railroad ties Sullivan mine at Kimberley and Trail smelter with each other and with the outside world.



Cominco's mining, transportation and production process is a classic example of modern integration. Quantities of inbound and outbound materials given are daily averages — not actual freight traffic for any given period.

President Gordon and staff prepare for plane inspection of Lynn Lake line.

About a million tons of ore now coming out of Steep Rock mine, near Atikokan, Ont. . . .

The Canadian National . . .

Biggest in North America

Railway is used by government as a development arm but must operate efficiently on a commercial basis

With its 24,273 miles of railroad, serving all of Canada's 10 provinces and 12 states in the U.S., the Canadian National is the greatest railway in North America in terms of route-miles, and fifth in terms of gross revenues —being exceeded only by the Pennsylvania, New York Central, Southern Pacific and Santa Fe. Among other things, it is Canada's largest single purchaser of industrial supplies and largest employer of industrial labor.

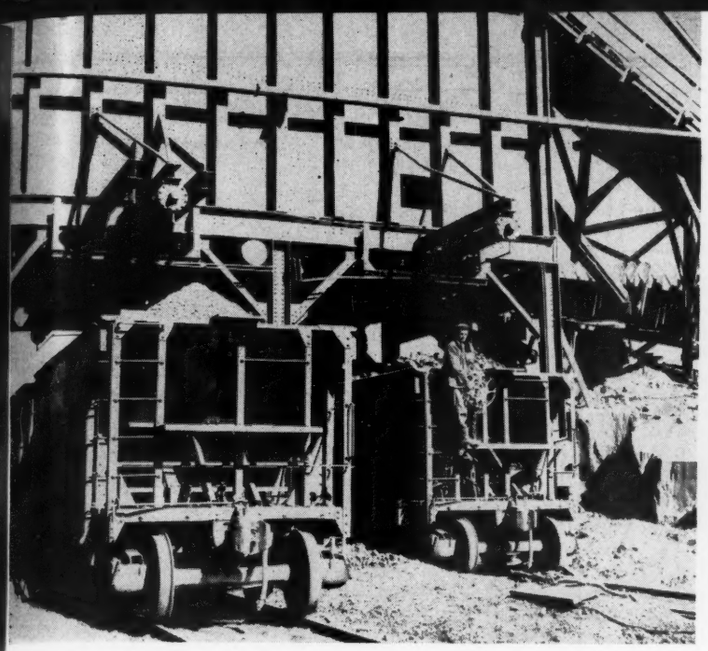
Corporate Organization

The CNR (as it is known everywhere in Canada) is a government-owned property "more by accident than by design," said the Royal Commission on Transportation, 1950. It came into being after World War I "as the result of a shot-gun marriage between public finance and transportation enterprise," adds CNR President Donald Gordon. Several railways over-extended themselves and got into financial difficulties. Because some of their obligations were guaranteed by the federal and provincial governments, the course of bankruptcy "through the wringer" was rejected as prejudicial to the country's honor and credit. Instead the bankrupt railways were taken over and amalgamated into the Canadian National Railways System—and their debt continued intact. The CNR "did not, and does not now, in any sense represent a deliberate experiment in socialism, and to treat the CNR as the expression of a political theory is complete nonsense."

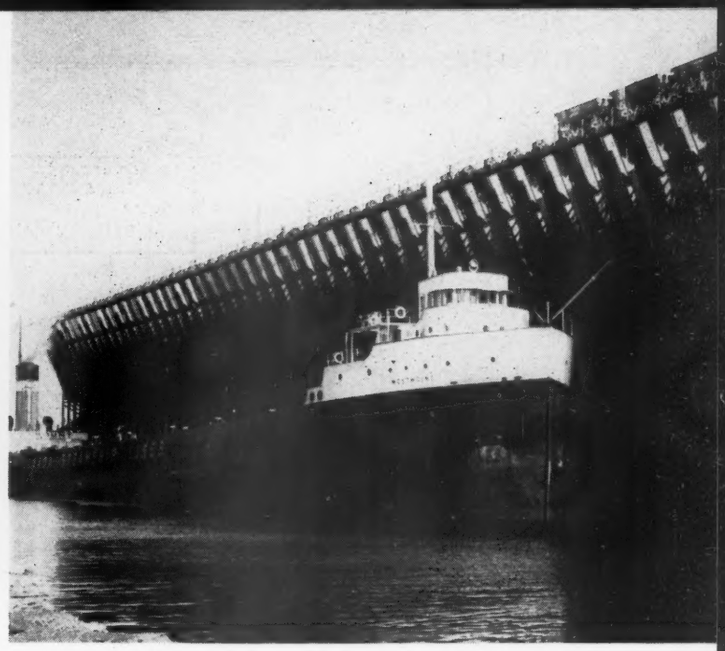
Reflecting this origin is the organization of the railway as any commercial enterprise, with a board of directors, with the usual powers and prerogatives, directing a management of professional railroaders. This organization bears, on most of its properties, the burden of ordinary property taxes accruing to municipalities and provinces; pays a federal 10 per cent sales tax on everything it buys; pays duty on all its imports; and shares in all of the nuisance taxes which local governments see fit to impose. There is some likelihood that it may even have to start paying income taxes.

The CNR has never had an operating deficit, and its management appears to be as careful of spending money as any privately owned property. The "deficit" about which people talk is that accruing as a result of the failure of the railway to earn enough surplus to pay the debt which is the heritage of its formation and of the later, continuing government policy of using the CNR as a means of keeping unprofitable railways in operation.

There is no indication that any part of the debt is due to profligate spending by the railway itself; the railway's book investment in road and equipment per mile of line is about 30 per cent less than the average of Class I lines in the U. S. and about the same as the privately owned Canadian Pacific. But against its actual assets, the CNR must bear proportionately twice as much funded debt—its ratio being 64 per cent, compared with 32 per cent for U. S. Class I roads and the CPR. The "carrying charge" on this debt is too great for the revenues of the road. In 1947, the ratio of fixed



. . . move from this recently discovered rich deposit over the CNR east to Lake Superior where . . .



. . . the new railway-operated ore dock at Port Arthur transfers it to lake vessels for movement to lower lake ports.

interest to gross revenues on the CNR was 10.5 per cent, compared with 5.0 for U.S. companies and 4.6 for the CPR.

The CNR is a development railroad. It sustains the financial burden, as well as enjoying the challenge, which this status imposes. It was estimated that, in 1948, no fewer than 5,700 miles of the system, (excluding Newfoundland) fell into the category of "pioneer" roads lying in territory yet to be developed to a point where the traffic originating and terminating has sufficient earning power to pay the expense of maintaining the branches and the cost of its carriage on the balance of the system. Not only is the railway constantly constructing new railways in frontier territory (like the Lynn Lake, and Kitimat extensions described in this issue), but it is used also by the government as the instrument with which to insure the continued operation of existing independent lines in thin-traffic country. The CNR has operated the Hudson Bay Railway since 1930. Jointly with the CPR, it operates the Northern Alberta Railways. In 1949 it took over the 700-mile deficit-producing, narrow-gage Newfoundland Railway as a part of the bargain by which Newfoundland, a crown colony, joined Canada as its tenth province. In December 1950 the government purchased the 101-mile Temiscouata railway in New Brunswick, and turned it over to the CNR for operation.

Great Traffic Growth

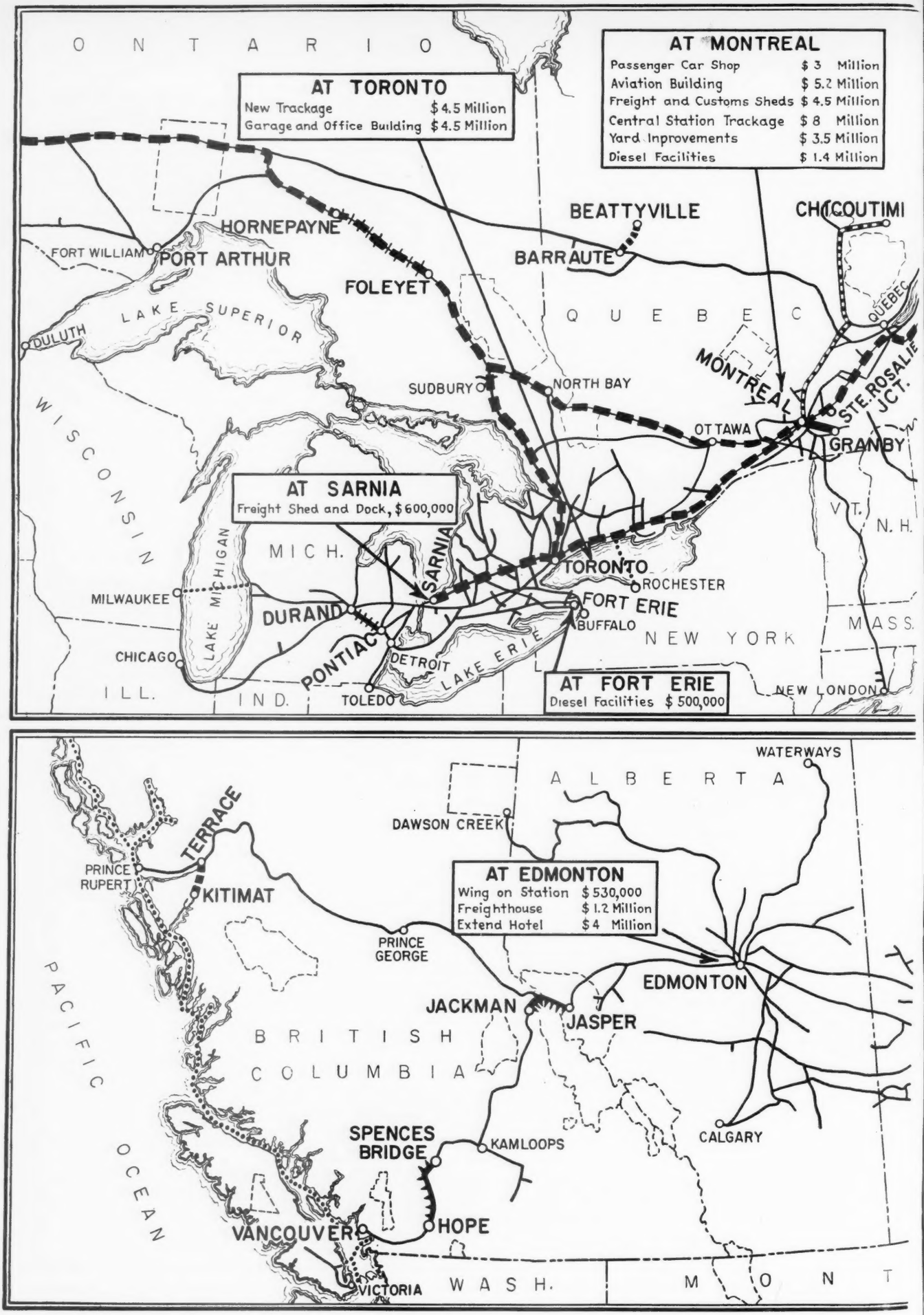
The role of the CNR as a development road in a country enjoying an unprecedented extractive, industrial and commercial "boom" is reflected in the growth of its traffic. Freight business totaling 36.4 billion revenue ton-miles in 1951 was the highest in the history of the system—including even the war years—and was up 13.9 per cent over 1950, 112 per cent over 1939 and 87 per cent above 1929, the last year of the booming twenties. A great increase in low-rated bulk traffic is the peculiar concomitant of the Canadian boom. Pulpwood traffic in 1951, for example, was up 73 per cent (in tons carried) compared with 1950. Movement of ores and concentrates and grain was also much higher. As a result, although national freight rate increases were effective in 1951, revenues received by the CNR in proportion to work done declined almost two per cent.

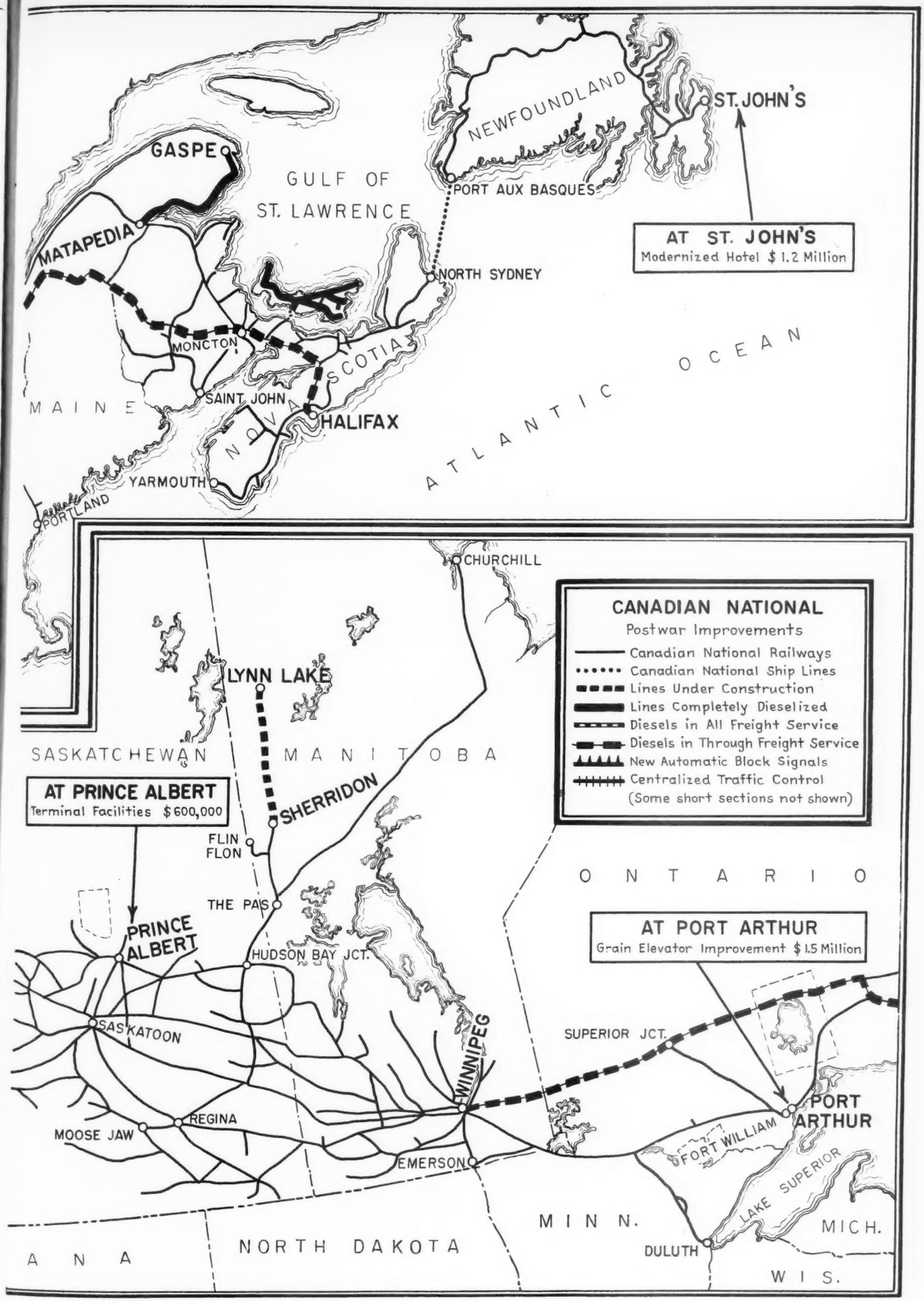
Line development is a routine matter for the CNR. Some new industries require only short spurs. Others require complete rehabilitation of existing, but dormant, facilities. Take the case of Steep Rock, Ont., northwest of Port Arthur. Some ten years ago high-grade iron ore, useful chiefly to "sweeten up steel," was discovered in this vicinity. U.S. steel companies furnished the capital for development. An entire lake was drained to make extraction easier. The federal government built a three-mile branch from Atikokan station to the workings, and an ore dock at Port Arthur — which the CNR now operates. About a million tons of ore a year are now coming out of Steep Rock. In a few years this is expected to grow to five million. To equip itself for this load, the CNR will lay heavier rail on the line from Atikokan to Port Arthur and install C.T.C.

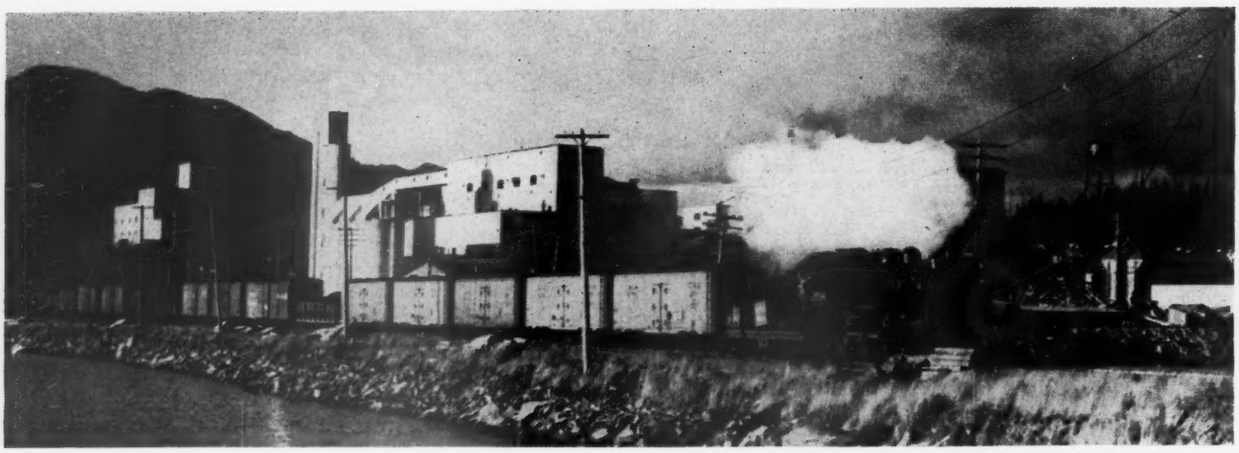
About 15 miles north of the end of the Lakefield branch of the CNR, which extends north some 9 miles from Peterboro, Ont., is a deposit of granite which bears a high percentage of alumina, and which makes an excellent fluxing agent for the making of glass. Within the past few years the stuff has become big business. The ore is now being trucked to a processing plant at Lakefield. The company is asking the CNR to build a 15-mile extension to a larger processer which it would bring on the extracting site, and which would have a capacity much higher than the 50,000 tons now produced annually.

Near Marmora, Ont., on a CNR branch some 30 miles north of Trenton on the main Montreal-Toronto line, there was found recently a magnetite ore which Bethlehem Steel is planning to beneficiate into pellets for shipment to the U.S.—about 500,000 tons a year. If this load is to be carried, the entire branch will have to be rehabilitated through to Picton and a four-mile extension run to a new rail-to-ship transfer facility on Lake Ontario.

About a year ago, a mining company purchased rights to mine zinc sulphide ores which had been recently found at a point about four miles north of the CNR's National Transcontinental line, about 10 miles west of Barraute, Que. What was cowpasture only yesterday now has a share value of more than $20 millions on the stock market—Barvue Mines. A spur has been built into the mine, which is producing about 100 tons of metallic zinc a day. Because treatment of the ore requires large quantities of electric power and ample water to carry off


AT TORONTO
New Trackage $4.5 Million
Garage and Office Building $4.5 Million
AT MONTREAL
Passenger Car Shop $3 Million
Aviation Building $5.2 Million
Freight and Customs Sheds $4.5 Million
Central Station Trackage $8 Million
Yard Improvements $3.5 Million
Diesel Facilities $1.4 Million
AT SARNIA
Freight Shed and Dock, $600,000
AT FORT ERIE
Diesel Facilities $500,000
AT EDMONTON
Wing on Station $530,000
Freighthouse $1.2 Million
Extend Hotel $4 Million
ONTARIO
QUEBEC
BEATTYVILLE
CHICOUTIMI
HORNEPAYNE
FORT WILLIAM
PORT ARTHUR
BARRAUTE
FOLEYET
LAKE SUPERIOR
DULUTH
QUEBEC
MONTREAL
STE. ROSALIE JCT.
SUDBURY
NORTH BAY
OTTAWA
GRANBY
WISCONSIN
MICH.
SARNIA
TORONTO
ROCHESTER
VT.
N. H.
MILWAUKEE
DURAND
FORT ERIE
BUFFALO
NEW YORK
MASS.
CHICAGO
LAKE MICHIGAN
PONTIAC
DETROIT
LAKE ERIE
ILL.
IND.
TOLEDO
NEW LONDON
WATERWAYS
ALBERTA
DAWSON CREEK
TERRACE
PRINCE RUPERT
KITIMAT
PRINCE GEORGE
EDMONTON
JACKMAN
JASPER
PACIFIC OCEAN
BRITISH COLUMBIA
SPENCES BRIDGE
KAMLOOPS
CALGARY
VANCOUVER
HOPE
VICTORIA
WASH.
MONT


NEWFOUNDLAND
ST. JOHN'S
GASPE
GULF OF
ST. LAWRENCE
PORT AUX BASQUES
MATAPEDIA
NORTH SYDNEY
AT ST. JOHN'S
Modernized Hotel $ 1.2 Million
MONCTON
ATLANTIC OCEAN
MAINE
SAINT JOHN
NOVA SCOTIA
HALIFAX
YARMOUTH
PORTLAND
CHURCHILL
CANADIAN NATIONAL
Postwar Improvements
Canadian National Railways
Canadian National Ship Lines
Lines Under Construction
Lines Completely Dieselized
Diesels in All Freight Service
Diesels in Through Freight Service
New Automatic Block Signals
Centralized Traffic Control
(Some short sections not shown)
LYNN LAKE
SASKATCHEWAN
MANITOBA
AT PRINCE ALBERT
Terminal Facilities $ 600,000
SHERRIDON
FLIN FLON
ONTARIO
THE PAS
PRINCE ALBERT
HUDSON BAY JCT.
AT PORT ARTHUR
Grain Elevator Improvement $ 1.5 Million
SASKATOON
SUPERIOR JCT.
WINNIPEG
PORT ARTHUR
REGINA
MOOSE JAW
FORT WILLIAM
EMERSON
LAKE SUPERIOR
MINN.
MICH.
NORTH DAKOTA
DULUTH
WIS.



New Columbia Cellulose Company plant at Watson Island, 14 miles east of Prince Rupert, B. C., on the old Grand Trunk Pacific line.

wastes, it is being shipped some 532 miles to a new refinery just completed at Chicoutimi, Que., at the end of the Lake St. John line of the CNR.

Forces are converging to lift from obscurity into prominence a subdivision of the CNR running along the southern shore of the St. Lawrence eastward from St. Lambert (opposite Montreal) to Belleville Junction. At Sorel there has been erected a brand-new titanium processing plant, with an input capacity of 1,500 tons a day, using ore brought in by boat and railway. At St. Antoine, on the same line, U.S. steel companies developing the new Labrador ore finds probably will build facilities for unloading from St. Lawrence boats to railroad cars for movement to U.S. mills. At nearby Varennes the Shawinigan Power Company has purchased a 540-acre site for a new integrated chemical center. Under the name of St. Maurice Chemicals, Ltd., a new enterprise there, will manufacture formaldehyde and pentaerythritol. On the same tract, Electric Reduction Company, Ltd., will establish a plant for the production of elemental phosphorus. Other plants are expected to follow. Thus, where now runs a light-traffic branch, with, in the past, two freight trains a week, there will, in the near future, be a great complex of chemical industries and heavy movements of ore. The CNR is now studying what must be done to build up the line to heavy-duty standards.

The CNR is also encouraging the development of lands which it owns. The road retained the mineral rights attaching to some three million acres in Saskatchewan which it sold years ago for farming. Recently it leased the exploration and development rights to a private concern, on a rental and royalty basis. As of April 1, 1952, an annual rental of almost $327 thousand had been earned, although no oil production had yet occurred. A subsidiary of CNR, Cannar Oils, Ltd., is in production in the Vermillion field of Alberta—the entire output of which is sold to the railway for use in oil-burning steam locomotives in the Mountain and Pacific coast regions.

Aid to Industry

Today Canada is probably the most attractive country in the world for the investor. Proof is the unprecedented flow of capital funds into the country from the U.S.—and even from countries which restrict capital emigration, like Britain, the Netherlands and Germany. But the job of finding *where* in Canada to build a mine, a factory, or a branch warehouse is a difficult one, nevertheless, because the vastness of the country makes industrial placement a matter for careful study and skillful planning if the speculative element associated with all new ventures is to be reduced to a minimum.

The CNR is in a unique position to serve the Canadian or foreign businessman. Unlike local governments or trade associations, it has no bias as to locality, because it serves the whole of Canada. Furthermore it is committed to a policy of recommending locations where, other things being equal, the freight charges paid by the industry are reduced to a minimum. The CNR sees no altruism in this deliberate effort to save industry transportation costs; it believes that "a healthy industry is one which has been so located as to be able to atttain its full potential and become a *permanent* asset to its community and the railway that serves it."

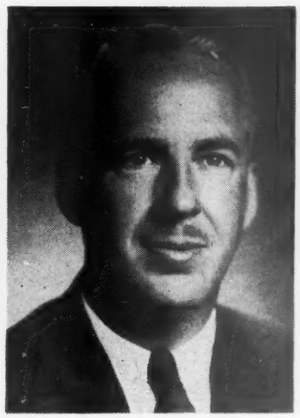
The railway's Industrial Development Section (under the Research & Development Department) specializes in the economics of placement. At Montreal there are headquartered a dozen trained engineers, mineralogists and economists. They have at their command wide personal knowledge, a file of every topographic and hydrographic map ever issued in Canada; every government document affecting business; and complete files of data, by locality, on water and power resources and taxation. Kept up to date, as far as possible, is a file of vacant plants and sites.

The section then proceeds with a "transportation cost analysis" which deals with each area as a basing point group for purposes of rate estimation. If, out of every 100 lb. production, 0.69 per cent will probably be consumed in Group 1, 1.33 per cent in Group 2, etc., it remains only to select a suitable series of "test plant centers," in that section of the country suggested by a combination of freight rates and market strength, to find the best location from a transportation standpoint. In the reasoning process, of course, the origin and transport costs of raw materials are taken into account.

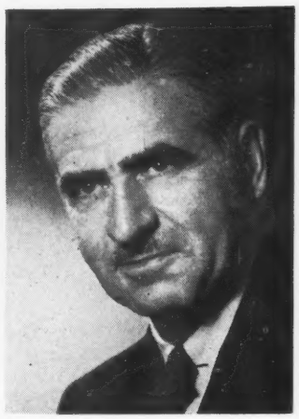
In addition to markets and freight costs, the section is fully equipped to suggest the best location to meet peculiar physical requirements. An American chemical concern wanted to locate a nylon plant in Canada, but was up against the necessity of finding unlimited quantities of water of constant, cool temperature. Water temperatures are not generally charted, but by using maps which

Top Management of the Largest Railway in North America

Donald Gordon, C.M.G., LL.D., Chairman and President

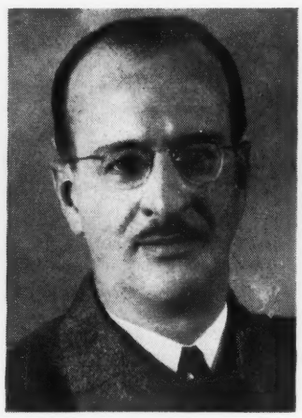


S. F. Dingle
Vice-president—Operation

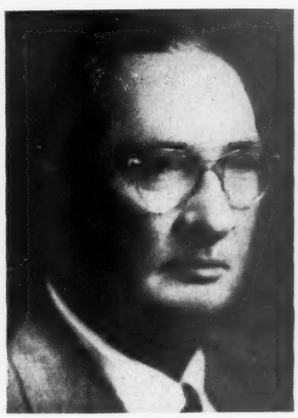


M. A. Metcalf, C.B.E.
Vice-president and Executive Assistant

W. H. Hobbs
Vice-president—Personnel



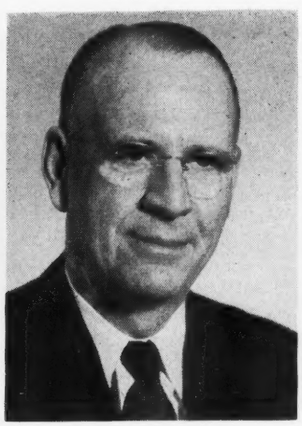
D. I. Grant, Q.C.
Secretary



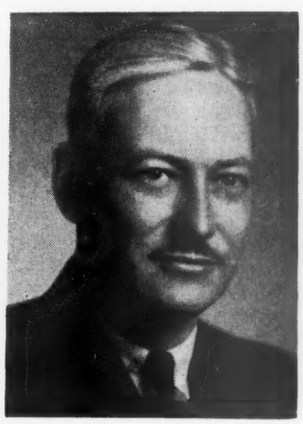
John Pullen
Vice-president—Traffic

T. H. Cooper
Vice-president—Accounting

S. W. Fairweather
Vice-president—Research and Development



N. J. MacMillan
Vice-president and General Counsel



E. A. Bromley
Vice-president—Purchases and Stores

C. D. Cowie
Vice-president and Treasurer

In 1949 the CNR took over operation of the 700-mile narrow-gage Newfoundland railway, with its 4,000-odd employees.

show water depth, and correlating its knowledge of air temperatures, the CNR development staff singled out a large number of possible locations along the St. Lawrence, Lake Ontario, and Georgian Bay. To each of these, in the hottest part of the summer, it sent men to test water temperatures at various depths. The result was the discovery, in Lake Ontario at Kingston, of a pocket of water 85 ft. deep, which never gets warmer than 55 deg. and which can be drawn off through an intake 65 ft. below the surface. Since Kingston also looked good for markets and transportation, it became the site of Canada's first nylon plant.

Once the experts have solved his location problem, the prospect then is referred to the proper field office, whose chief responsibiliy is the negotiation and provision of industrial sidings, locating of industrial lands, zoning problems and continuing liaison between industry and the railway. Industrial development officers in the field report to the regional vice-presidents and are closely integrated with the operating department of the railway. There are industrial agents at Vancouver, Edmonton, Toronto and Montreal. An industrial and joint facility commissioner is at Toronto. Industrial commissioners are located at Winnipeg and Detroit, while industrial engineers may be contacted at Quebec and Moncton. Offline agencies at New York and London, Eng., are staffed with trained industrial experts to discuss problems with interested "foreign" businessmen.

Colonization and Immigration

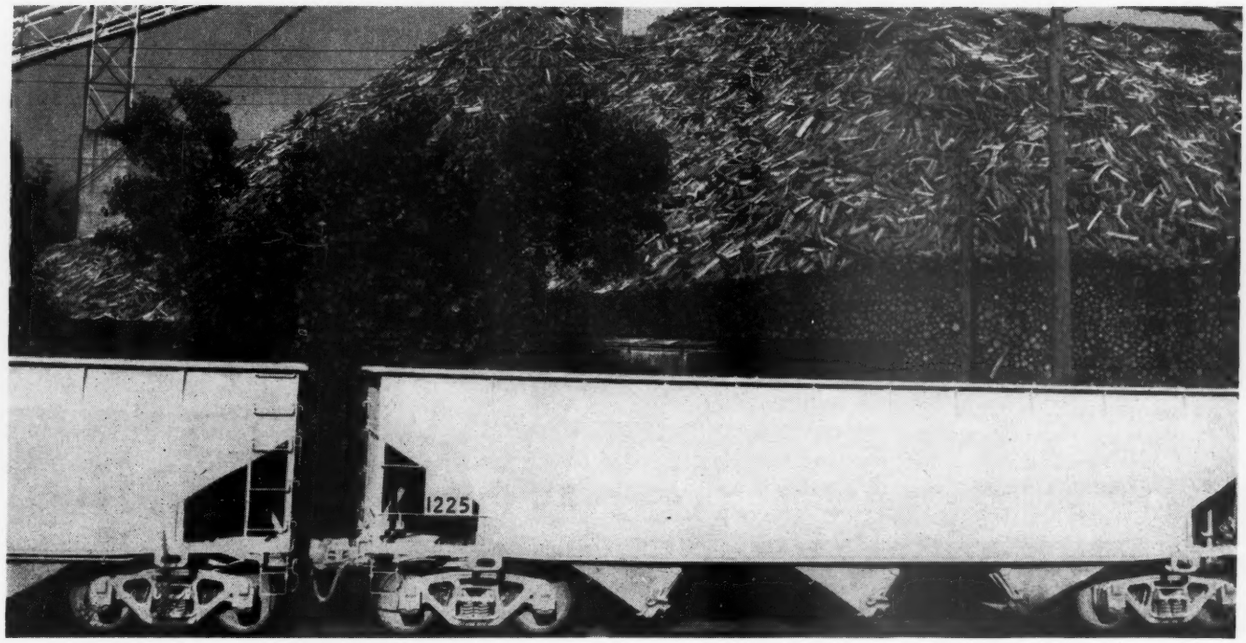
During 1951 more than 194,000 immigrants entered Canada—the largest number since 1913. To accommodate newcomers from overseas, the CNR operated 286 special trains during the year from ports of entry. Staffs of interpreters and men trained in family settlement work were used by the railway in reception and transportation arrangements. Handled by its Department of Colonization & Agriculture, the company's immigration "mission" includes not only transportation of immigrants but their settlement on lands served by its lines. A total of 10,996 families were so located in the period 1946-1951.

The Build-Up

To maintain modernity, deal with a much higher level of traffic and support new and old "development" lines, the CNR has been spending money at a high rate during the postwar years. *Gross* additions and betterments—money actually spent for new and improved facilities or purchases of absorbed properties—are, unfortunately, not available in the CNR's published accounts. The less satisfactory *net* figure (which understates the railroad's new investment because it writes off at book value property retired) nevertheless indicates the trend as being sharply upward, as shown in the table. Net expenditures for capital improvements in 1951 (including hotels) came close to $86 million.

The major improvement projects which the CNR initiated or completed during the six-year postwar period 1946-1951 are indicated in proper geographical location on the accompanying map of the CNR. Mention need be made only of a selected few of particular interest to the users of railway service.

The growing volume of traffic and intensive industrialization which are a part of the Canadian boom have produced serious congestion in terminal and yard facilities at major cities. The problem is "compounded of obsolete layout and inadequate capacity," says the railway's 1951 report, and "has been receiving systematic and comprehensive study with a view to making improvements—both in facilities and in operating methods—which will provide a measure of *immediate* relief during the period which must intervene before long-term remedies can take effect." The job of both short- and long-term improvement is made complex by the fact that the terminals themselves encouraged industrial growth bor-



Pulpwood traffic increased 73 per cent last year. In foreground of scene at Port Alfred, Ont., are two of five aluminum-sheeted hopper cars which the CNR is testing in a wide range of revenue service.

dering railway property, so that it is now impossible to obtain the land necessary for their expansion.

Getting a major share of attention is Montreal, the largest freight center in Canada, which not only serves a heavy concentration of industry but also is a classification point for through traffic to and from the Maritimes (Nova Scotia, Newfoundland, New Brunswick and Prince Edward Island) and the U. S. Here the CNR has begun a $10 million yard and terminal project. Turcot yard, the present main facility, is near the center of the city and hemmed in on all sides. Sufficient physical expansion is not possible. As an interim measure, work has been proceeding on a progressive program of track extensions. The long-range plan is for the construction of an entirely new modern hump yard in the northwest Cote de Liesse section, upon completion of which Turcot would become a storage yard and industrial yard supporting local industries.

Cote de Liesse already contains a two-mile square industrial area which, little more than open field and farm 12 years ago, has blossomed into one of the city's largest manufacturing and warehousing areas, employing nearly 3,000 people in some 100 new plants and warehouses which cost almost $14 million to build. An additional investment of $10 million is in the offing. In 12 years freight business in the area has grown from practically nil to some 16,000 loaded cars in or outbound in 1951. To handle merchandise traffic and furnish office space for the CNR's freight operations, the newest and largest freighthouse in Canada is now being completed on the site of old Bonaventure station in downtown Montreal.

Growing, if anything, even faster than Montreal is Toronto, Canada's second city in population. Here CNR lines radiate in five directions. Instead of belt line development, which is the main pattern in Montreal, it is likely that additional industrial access lines will take the form of spurs off these radiating mainstems. The 40-year-old Mimico yard is proving inadequate as a main classification point. The addition of a half-dozen industrial supporting yards in the Toronto area during the last decade has alleviated, but not eliminated, the necessity for excessive rehandling of cars. Consequently the CNR will complete this year a major rearrangement and enlargement of Mimico, with a lift in capacity from 3,133 to 4,176 cars.

The railway finds its Vancouver terminal at Port Mann unsatisfactory. Freight for Vancouver proper must be moved by long transfer runs through cramped facilities. Enlargement of the yards was completed in 1950, but for the long pull the road is looking to a brand-new development on the north shore of Vancouver harbor, with adjacent marine transshipment and industrial development areas. Consideration has been given to acquiring trackage of the National Harbours Board on both sides of Burrard Inlet.

Edmonton, where the CNR has its greatest concentration of main-line facilities between Winnipeg and the Pacific Coast, is gaining new citizens at the rate of 1,000 a month. Oil and chemicals are adding to the population of an already well-located city. In November 1950 the CNR completed a new and larger freighthouse in Edmonton with a capacity of 108 cars, to replace two former facilities which, together, had a capacity of five cars less. The related project of rearranging Edmonton yard facilities has also been carried out.

To increase line capacity, as well as safety, the CNR has been engaging in an extensive program of installing automatic block signals on portions of main line not hitherto signalled. Eventually, some 512 miles of main line from Jasper, Alta., to Port Mann will be so equipped. C.T.C. has also been extended progressively, being completed in 1951 over 148 miles of line between Foleyet, Ont., and Hornepayne, and on a single track section separating two double-track territories, between Pontiac, Mich., and Durand, 35 miles.

Mechanization of track maintenance was advanced during 1951 by the purchase of five mobile, multiple-unit type power tie tampers and a large number of small

Net Additions and Betterments during Postwar Years (after retirements) in millions of dollars

	Roadway	Equipment	Total (incl. hotels)
1951	31	57	86
1950	17	21	38
1949	18	30	47
1948	16	48	65
1947	10	12	23
1946	12	5	16
Total	104	173	275

power tools. Two mobile ballast cleaners were rented for the cleaning of 310 miles of track between Montreal and Chicago, in both Canada and the U. S. Their use has been continued this year.

The Equipment Program

The $173 million *net* (after retirements) spent by the CNR during the postwar period, through 1951, on new rolling stock has gone largely toward increasing the carrying capacity of the freight car fleet and making possible operating economies and better freight service through the use of diesel-electric power.

This form of locomotion is nothing new to the CNR, which claims to be the first road in North America to experiment with diesel-electric motive power. In 1925 a CNR diesel-electric heavy railcar made a successful transcontinental journey. In 1928 the road received from the Canadian Locomotive Company the first diesel-electric road locomotive in the world—No. 9000—which is said to have ended its days cased in plate as the motive power of an armored train made ready in the west to repel Japanese invasion.

The road's current dieselization program contemplates a five-year program, starting this year, of partial dieselization of those services where relatively intensive utilization can be obtained. At the end of that period diesels would be handling 51 per cent of all freight service; 13 per cent of passenger service; and 33 per cent of switching service. The management emphasizes that the capital cost of the program (some $95 million) is justified not only by economies in train operation, but in the opportunity to rearrange and simplify servicing and repair facilities.

New locomotives placed in service during the period 1946-1951 comprised 244 diesel-electric units, 12 steam locomotives and 3 electric locomotives. On hand at the end of 1951 were orders for an additional 29 diesel switching and 33 road locomotives. The road's total motive power inventory at the end of the year totaled 1,901 steam road locomotives; 539 steam switchers; 33 straight electric units; 120 diesel road units and 160 diesel switcher units, a total of 2,753 units.

During the postwar build-up period, 1946-1951, the CNR acquired 17,086 new freight cars. As of the close of 1951, orders remained outstanding for an additional 9,635 cars. Revenue freight cars in service on the CNR at the close of 1951 totaled 109,246 units. The existing fleet of freight cars on the CNR is in better condition to haul loads than for many years past. Several years ago, the road put on a special drive to "catch up" on its bad-order situation and has been successful in reducing the percentage of bad-order cars from about 8 per cent to 3.

Until this year the preponderance of new passenger-train equipment placed in service since the war has been of benefit largely to shippers, being of the head-end type to handle express and mail. New (excluding rebuilds and second-hand units) passenger-train cars placed in service 1946-1951 totaled 266 cars. Unfilled orders at the end of 1951 totaled 124 cars. The passenger-train car fleet of the CNR, at the end of the year, totaled 3,451 units. In March the CNR created a stir in the railway world when it requested bids from U. S. and Canadian builders for 194 new passenger-train cars—an unusually large order. Included in the project are 47 coaches, 64 sleeping cars, 8 sleeping-buffet-lounge cars, 10 sleeping-diner cars, 5 parlor-buffet cars, 20 "tourist" cars, 20 dining cars, 15 cafe-parlor cars and 5 parlor cars.

Ancillary Operations

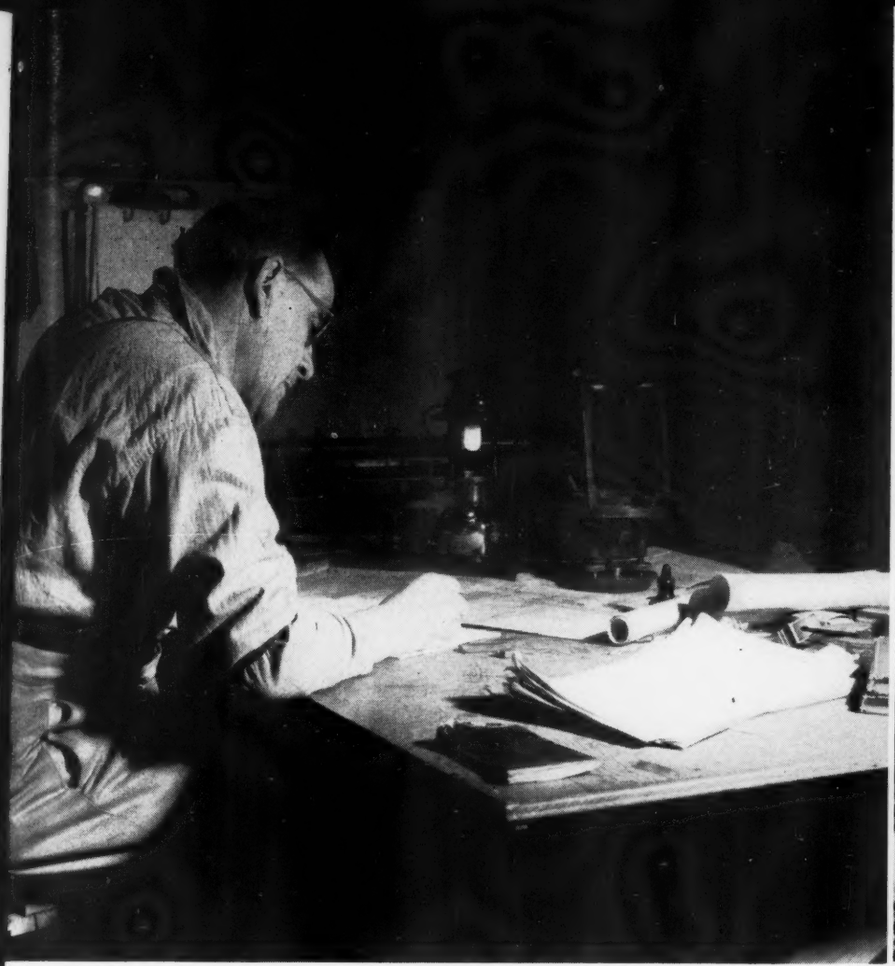
The CNR carries on a number of large businesses which are ancillary to its railway operations—to an extent much greater than do U. S. carriers. It owns and operates nine large hotels and three summer resorts, with net operating income of more than $588 thousand in 1951. Gross revenues were the highest on record. These establishments not only encourage travel on CNR trains but, when they were initiated, filled a need for "amenities" in sections of Canada where independent private venture capital was lacking for the business of hotel-keeping.

The nationwide system of the Communications Department of CNR is operated as an integral part of the railway. It serves the public with a full complement of commercial facilities as well as for the operation of the railway itself. Its network extends from the borders of Alaska to the Maritimes. In April 1951, crown-owned radio connection between the mainland and Newfoundland was turned over to the CNR, which had already taken over the island's land communications in April 1949. At present the communication system utilizes more than a half million channel-miles—more than double the number used in 1939. During 1951 original plans for a 60 per cent increase in carrier channel mileage, to cope with steadily rising demand, were slowed by serious delays in receipt of materials, and only 15 per cent of the program had been completed by the end of the year. It is expected to be carried out in 1952.

Express traffic on the CNR continues to increase, despite a growth also in government parcel post shipments. The number of shipments handled by the former in 1951 totaled almost 24 million, up five per cent over the previous year. Revenues went up almost 19 per cent, due partly to higher rates.

The CNR management has been outspoken in recent months about a proposed policy of employing highway transport "as an adjunct to basic rail services." It gave initial effect to the policy by inaugurating eight small-scale truck services and two bus services during 1951. Other coordinated services are in the planning stage. The most important is a proposal for a system of bus and truck routes on Prince Edward Island, ancillary to railroad service, which is now before the province government for approval. Despite the accusations of the trucking industry, which is entirely free from federal regulation, the CNR does not plan wholesale entry into the bus and truck business. As a development railway, it does, however, find great usefulness in highway transport as an aid in running that railroad.

Canadian National Steamships, a separate company owned by CNR, operates a fleet of passenger-freight vessels along the Pacific Coast, between Vancouver, Victoria and Prince Rupert, B. C., and Skagway, Alaska. Foreign steamship services are operated between Halifax, Bermuda, and British West Indies. Trans-Canada Air Lines is an affiliated government-owned airway system, serving the most heavily used routes in Canada, between Canada and U. S. points, and between Canada and Bermuda, the United Kingdom and France. Senior CNR officers serve on its board of directors.



A Portfolio of Pioneering Railways

Building brand-new railways into the wilderness is one of the most dramatic aspects of the Canadian boom—and proof that railways are neither "matured," nor unnecessary in new areas.

There follow short sketches of seven pioneering Canadian railways selected as representative of their kind.

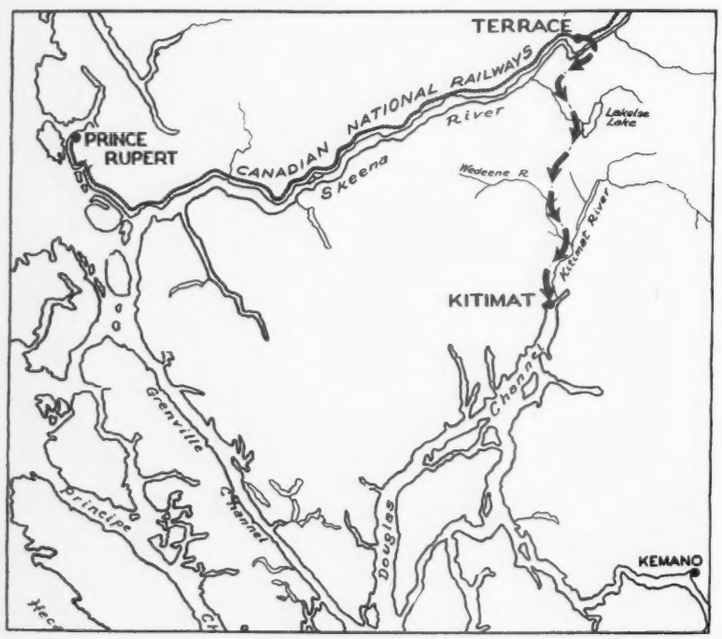
One of them is in the advanced planning stage. Two are under construction. One has just been completed. Three are older enterprises, but retain to this day their frontier atmosphere and function. One of the latter is building an improved extension. There are big stories in these frontier lines of 1952.

Site of the world's largest aluminum plant to be—as it was in September 1950.

CNR Kitimat Branch . . .

Supply Line for Largest Aluminum Plant

As the world's appetite for its product increases, "by the very nature of its reliance on almost unbelievable quantities of electric power, the aluminum industry is constantly edging toward the fringes of civilization," declares McNeely Dubose, vice-president of Aluminum Company of Canada. After looking all over the world for suitable sites, the Aluminum Company of Canada decided to locate what will be the world's largest aluminum smelter at the north end of Kitimat Arm, along the precipitous mountain coast of British Columbia, 70 air-line miles south of Prince Rupert, and 420 miles north of Vancouver.



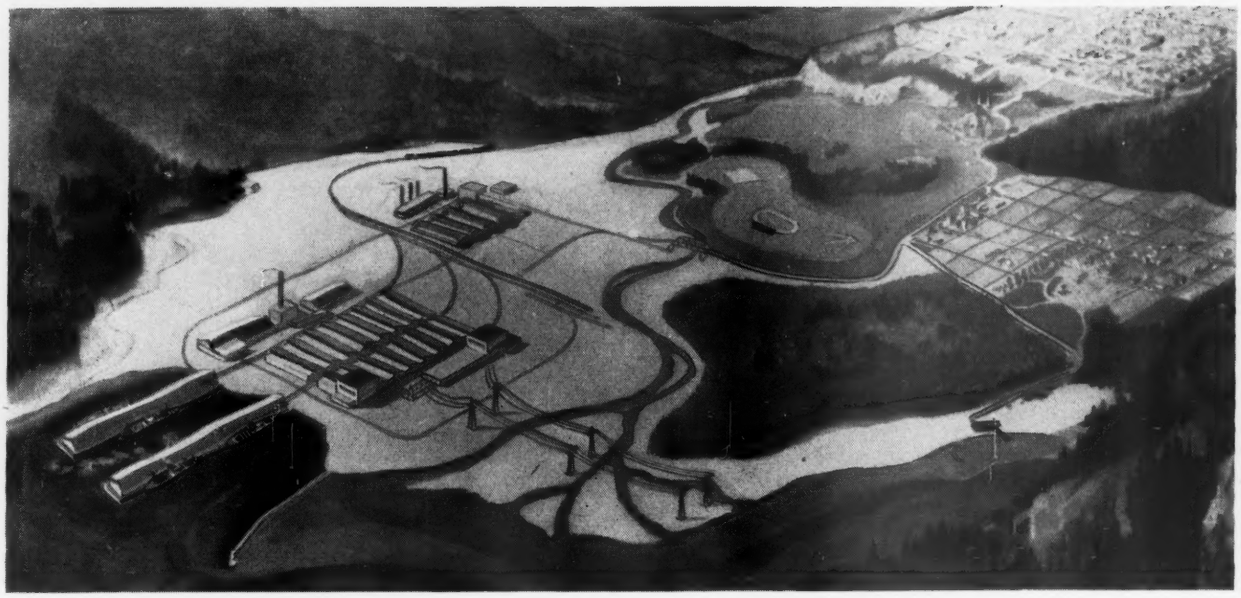
The government has authorized the CNR to spend $10 million on a new 43-mile railway, from Terrace to the new plant site.

To engineers flying into the interior in the late spring of 1948, Kitimat looked good because it had (1) great availability of water power; (2) deep water transportation; and (3) interior land communication. The latter is where the Canadian National came in.

Kitimat has one of the few open adits through the coastal range to the interior. In fact Kitimat was surveyed by the Grand Trunk Pacific (predecessor of CNR) as a western terminus of its road, and a route for a railway was located through the mountains. Later, the decision was made to use Prince Rupert as terminus, despite the fact that a line to Kitimat would be shorter.

Now that Kitimat is in business this time for sure, the CNR has obtained government authorization to build, with all possible speed, a new railway approximately 43 miles long. The new branch will constitute the land supply line of the great aluminum plant and its associated town—expected in the future to support as many as 50,000 residents, where, until two years ago, nothing existed except an Indian settlement.

Running through extremely difficult terrain, the new line will take off from the present CNR northern main line at Terrace, some 95 miles southeast of Prince Rupert, cross the Skeena ¾ mile east thereof, and continue across flats and up the valley of the Lakelse river. This, and a tributary, it will follow up to height of land, where it will pick up the old GTP location of 1908, and



Artist's sketch of Kitimat, B.C., showing docks, smelter and townsite, to be constructed by Alcan as part of its B.C. project.

follow it, with but minor variations, down to the Kitimat site, via the valley of the Wedeene and Kitimat rivers. Maximum grade against both north and southbound traffic will be 1.5 per cent, compensated. Maximum curvature will be 14 deg. The cost of fixed facilities alone, without rolling stock, is expected to be about $10 million. The relatively high cost per mile is due to the remoteness of the area and long hauls for materials, scarcity of labor, severity of terrain, and an expensive crossing of the Skeena river.

While it will be 1954 before the first aluminum ingot is produced at Kitimat, the demand for good land transportation is insistent for construction of the project. The combination of water movement and pioneering highways now used is not satisfactory. Alcan estimates that, for completion of the first stage of the Kitimat project alone, there will be required, in three prime commodities alone, 29,000 tons of steel; 3,900 tons of aluminum and 50,000 tons of cement. Construction of dams, power plant and transmission line should produce additional heavy rail traffic.

Kitimat's basic raw material will be alumina (aluminum oxide) processed from raw bauxite near the source of supply in Jamaica, in the Caribbean. It will come by ship through the Panama Canal. At Kitimat, alumina will be converted into aluminum metal.

Phase One of the project calls for the production of a minimum of 91,000 net tons of aluminum annually. This will require the building of a townsite and supporting business facilities for some 8,000 people, initially. The biggest item of inbound traffic would be 175,000 tons of waterborne alumina. But there will also be an inbound movement over the new railroad line of an estimated 83,500 tons of freight a year (not including construction materials). This inbound tonnage, for which railroad transport is essential, will include petroleum coke; coal tar pitch (for lining pots); calcine anthracite coal; aluminum fluoride and refined fluorspar; soda ash and miscellaneous freight. Of the outbound traffic of 91,000 tons of aluminum annually, the railway is expected to carry about 30,000 tons of ingots. With the higher level of production planned in the second five-year period, the railway's outbound ingot traffic would rise to about 60,000 tons annually. Total production at Kitimat may ultimately run as high as 550,000 net tons of aluminum a year.

The decision of the CNR management to spend $10 million on the Kitimat branch is based upon a complete study of traffic possibilities and contributions to system revenue over and above the carrying cost of the new line and full operating expenses over the system. That study is a fascinating example of modern techniques of development analysis—with which railways serving more mature regions have little opportunity to experiment. In this study there is taken into account the plant's input and output of commodities; the passenger, freight and express traffic produced by the townsite; and traffic incident to construction and expansion of the plant and power facilities. In analyzing this data the railroad's Department of Research & Development took notice not only of the revenues accruing systemwide on the freight estimated to move over the new branch itself, but also railway revenues accruing elsewhere in Canada on freight which might move into Kitimat by water or, ultimately, highway, but which would receive a prior rail haul.

Also taken into the reckoning was the abundance of timber in the valleys through which the new branch will run—estimated to yield a minimum tonnage of 22,500 during each year after the first five-year developmental period. Kitimat is also expected to become a new and important port (of which Canada's Pacific coast has very few), with a lively traffic in fish (both frozen, fresh and canned) even if nothing else develops. The latter contingency is not likely since, unlike other ports in British Columbia, Kitimat will not suffer for lack of inbound water shipments and, hence, bottoms for outbound movement. Its position will be the reverse, for, since much of the inbound alumina will come in tramp steamers, there will be available plenty of inexpensive bottoms for all ports—especially to the Caribbean.

The decision to go ahead with the Kitimat line was based on an estimate that, during the first five years of operation, annual traffic would be not less than 113,500 tons of revenue freight traffic; and during the second five years, more than 168,000 tons.

Virtually unheard of a few years ago, Seven Islands now has a promising future as a railroad terminal and ore transshipment port.

The Quebec, North Shore & Labrador . . .

"Iron Ore by '54"

Iron ore by '54" is the present slogan of the veteran railroaders and the north-country-trained engineers who are building Canada's longest "pioneer" railroad—the 360-mile Quebec, North Shore & Labrador.

That slogan comes from a recently published article by Dr. J. A. Retty, the Canadian geologist whose proving of the enormous deposits of high-grade iron ore in Labrador and northern Quebec furnished the incentive for construction of the QNS&L. It means just what it says—that by the end of the 1953 construction season the railroad should be completed, or so nearly completed, that mining and shipping of ore on a large scale can begin in the following year.

No Idle Boast

That the slogan is no idle boast is fully borne out by the statement of W. H. Durrell, general manager of the project, at the annual meeting, last March 27, of Hollinger Consolidated Gold Mines, Ltd., when he said in part:

"Work on the railroad, the most important part of the project, was continued from Seven Islands and also was started at the north end from Knob Lake. Grading is well ahead of schedule . . . the first 110 miles have been largely completed and 30 miles at the north end almost finished. More than 40 per cent of the 14 million-odd cubic yards of rock and other material involved was excavated.

"At Mile 12, a 2,250-foot tunnel has been completed and work on the only additional tunnel on the route at Mile 65 has now been started.

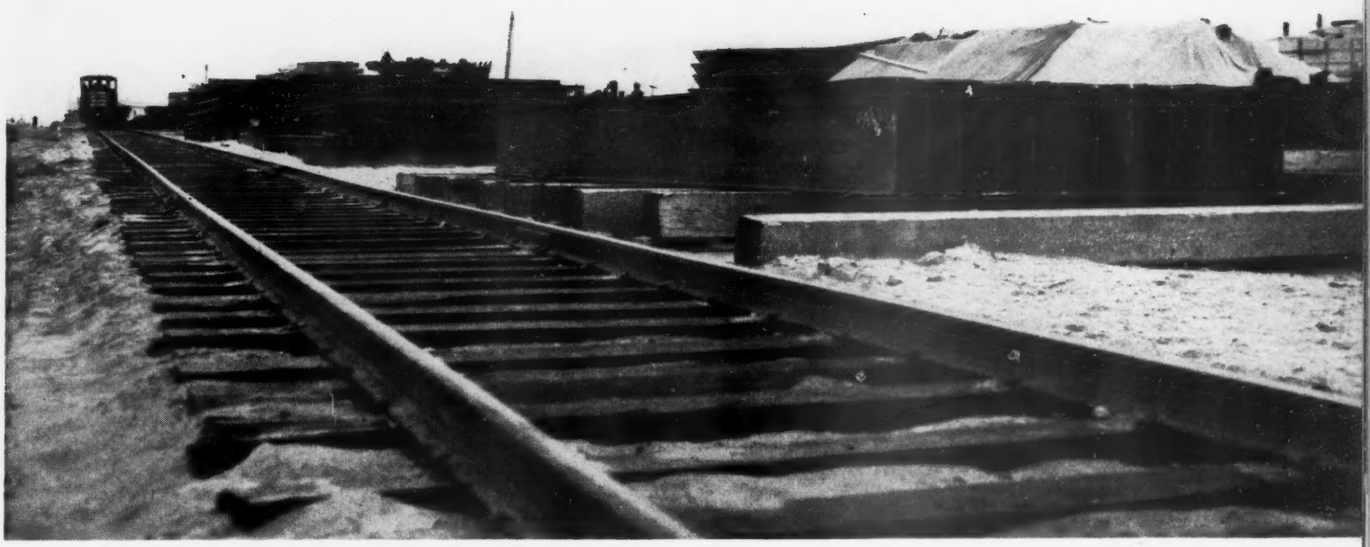
"A 700-foot steel bridge over the Moisie river at Mile 12 has also been completed, and foundations are now being built for two more steel bridges—one 54 feet long at Mile 31 and the other 160 feet long at Mile 41. The Moisie bridge proved a bottleneck on track-laying operations, but with its completion it is planned to lay a mile of track a day, and it is expected that steel will be laid to Mile 190 by the end of this year. Just north of the bridge are five miles of very rugged ground and once it is passed, advance should be quite rapid. Construction work will continue through 1953 in order to complete the road by the end of that year, a full year ahead of the schedule originally planned.

"At Seven Islands, the freight yards have been cleared and between 12 and 14 miles of track have been laid. Six diesel locomotives are already hauling materials along the route. Work is on schedule on the loading docks and 45 of the 75 projected houses are almost completed. . . .

"When completed the railway will be one of the most up-to-date on the North American continent. It will have central traffic control and other modern features. All rolling stock will be equipped with roller bearings. Diesel engines of 1,500 hp. each will haul the ore trains in units of four. Ore cars will have a carrying capacity of 90 long tons. Each train will haul 10,000 long tons of ore. There will be seven trains per day in each direction."

As previously reported in *Railway Age* (November 11, 1950; November 18, 1950; July 9, 1951; and July 23, 1951), and as shown by the accompanying map, the QNS&L will extend from Seven Islands, on the Gulf of St. Lawrence, almost due north to Knob Lake, at the approximate southern edge of the new iron ore area. It is being built for the sole purpose of moving that ore from the new mines to tidewater at Seven Islands, from which point it will be shipped by water, or water-rail routes, to steel mills in Canada and the United States.

Movement of ore to Seven Islands is expected to approximate 10 million tons a year at the start, with a possible future increase to around double that figure.



Yards and service facilities at Seven Islands are expected to require about 40 miles of track; its construction is well under way.

A considerable amount of the ore moved during each mining and rail shipping season of approximately six months duration will probably be stockpiled at Seven Islands, to permit more or less continuous water shipments even during months when the mines and railroad will not be operating.

Grades on the new line favor the loaded southbound movement, permitting anticipated trainloads of approximately 115 cars, or 14,000 trailing tons, gross. Tentative running times have been set at 14 hours for loaded trains and 12 hours for empty trains. Train operation will be by signal indication, supplemented by radio. The 22 passing sidings—which, it is said, will give the line a practical capacity of 36 trains per day—will have remote-controlled power switches at the south ends and spring switches at the north ends; loaded trains will hold the main line when meeting northbound empties.

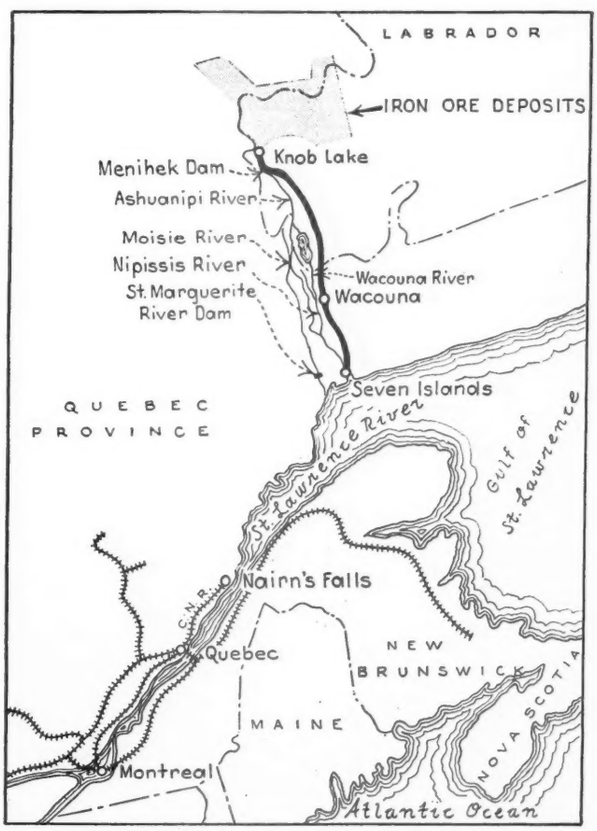
Equipment for line haul of ore, according to another statement by Mr. Durrell, will include 55 1,500-hp. diesel-electric road-switchers; 2,400 solid-welded, roller-bearing-equipped ore cars with 36-in. steel wheels and semi-tightlock couplers, and 20 all-steel roller-bearing cabooses. In addition, for construction and future maintenance, there are to be 175 ballast cars, 50 boarding cars, 20 air dump cars, 100 flat cars, 15 tank cars, 20 box cars, two 250-ton wrecking cranes, and at least three 70-ton diesel switchers.

For operating purposes it is proposed to divide the road into two 180-mile subdivisions, with crews changing at Midway, the intermediate terminal, where sleeping and eating accommodations will be provided.

Main track will be laid with 132-lb. rail, with treated ties, 14-in. tie plates, six-hole joint bars, and No. 12 passing track turnouts. Local gravel, eventually to be replaced by rock, as the roadbed becomes stabilized, will be used as ballast. Yards, service facilities and shops at Seven Islands will require about 40 miles of track.

General contractor for the project is Cartier-McNamara-Mannix-Morrison-Knudsen, a combination of four large Canadian construction companies.

Concessions to the ore deposits are held by the Labrador Mining & Exploration Co. and the Hollinger North Shore Exploration Company, both of which are controlled through stock ownership by Hollinger Consolidated Gold Mines, Ltd. Actual production of iron ore will be carried out, generally, under sublease from the two concession holding companies, by the Iron Ore Company of Canada. "Ioco" is in turn controlled by a "partnership" composed of Hollinger and its two subsidiaries, the M. A. Hanna Company of Cleveland, and five United States steel companies—Armco, National, Republic, Wheeling and Youngstown Sheet & Tube.



Beginning probably in 1954, the 360-mile Quebec, North Shore & Labrador is expected to haul approximately 10 million tons of iron ore per year, and perhaps eventually 20 million tons, from Quebec-Labrador ore deposits north of Knob Lake to tidewater at Seven Islands.

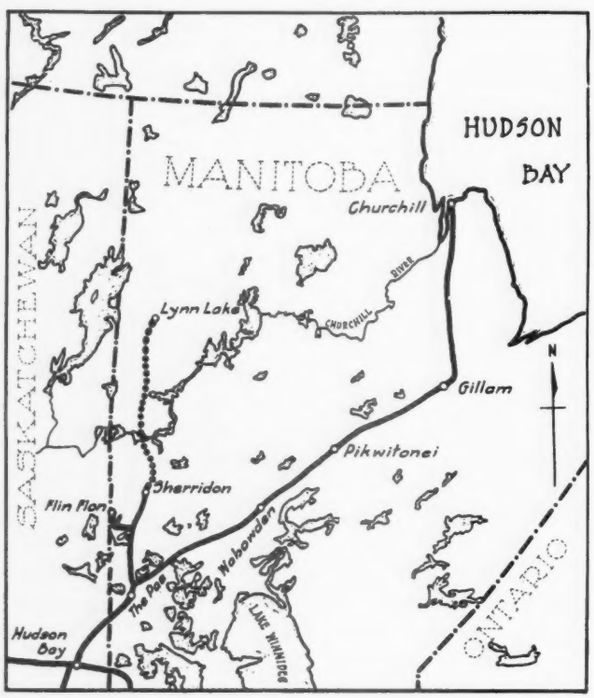
Clearing right-of-way through a semi-frozen wilderness of rock, hardpan and lakes.

CNR Lynn Lake Line . . .

A Railway Key to New Mineral Treasure

One day in 1941 a prospector, canoeing along the shore of Lynn Lake, in the "permafrost" wasteland of the Laurentian shield, some 550 miles north of Winnipeg, Man., found an outcropping of mineralized rock which proved, upon assay, to be six per cent nickel—one of the world's richest strikes. Wartime conditions inhibited further development, but the very month the war ended, in 1945, an expedition was sent north with diamond drills to find what was what. Between 1948 and 1950, Sherritt-Gordon Mines, Ltd., sunk a shaft to a depth of 1,000 ft. and opened deposits by drifts and crosscuts.

Further development and exploration was stopped, because the mining company decided it was fruitless to proceed further until it could get the promise of a railroad to serve the remote workings. Lacking it, commercial exploitation simply was not feasible.



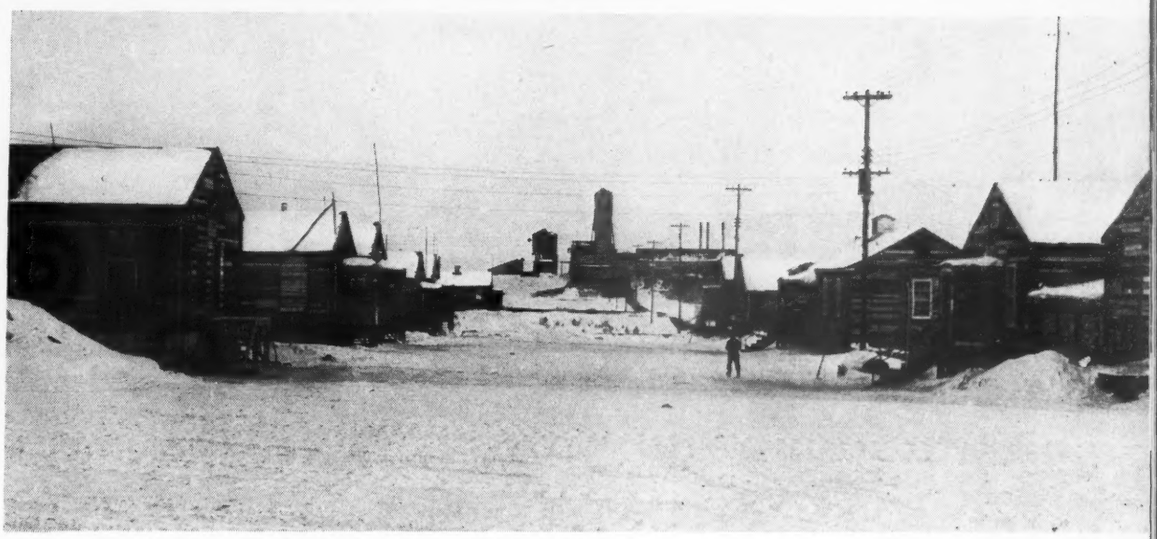
Basis of Decision

Provided it got the railway, Sherritt-Gordon said it would establish a mine and concentrator at Lynn Lake employing 500 men; a townsite of some 2,500 people; a nickel refinery at Fort Saskatchewan (near Edmonton, Alta.) for refining nickel concentrate from Lynn Lake and manufacturing, as a by-product, ammonium sulphate for fertilizer; and a 7,000-hp. hydro-electric plant on the Laurie river, with ultimate potential of 15,000 hp. The whole would take more than $32 million. And its annual production would have an annual value of $14 million.

The CNR decided to recommend the essential transportation project, involving a 155-mile railway. Its cost of about $15 million would be shared up to $10 million by the railway and the rest by the federal government, in recognition of the special nature of the undertaking as part of the national defense program of Canada—and of the free world.

First surveys were started in February 1951, with no previous information available. This proved to be quite an undertaking, because the country had no usual means

New 155-mile railway will run north from abandoned Sherridon . . .



. . . to wilderness frontier town of Lynn Lake, which is now supplied by tractor and plane.

of access, and time was precious. The general topographical features of the country are hills and ridges—solid rock, loose rock, hardpan and other materials—valleys with lakes, rivers and streams, and some muskeg. Below the overburden of earth and trees, which can be handled by bulldozers, there lies the shield's armor of granite and gneiss, requiring drilling and blasting. The numerous lakes, rivers, streams and swamps will make necessary the construction of some 65 timber bridges, one small steel bridge, and three major steel spans of E-50 rating, in addition to more than 500 culverts.

While there is little difference in the elevations of the terminals of the new line, the intermediate territory is badly broken by ridges, up to 200 feet in height, most of which cross the projected railway line. The topography is particularly rugged at the crossing of the Churchill river at Mile 56. The crossing itself will consist of two through truss spans 200 feet in length, and one through truss span 155 feet in length, each supported on reinforced concrete abutments, over the three separate channels of the river. For approximately 35 miles on the northerly end the direction of the waterways is north-south, which makes railway construction generally favorable.

On June 20, 1951, Parliament authorized the CNR to build the line, at an indicated cost of $95,000 a mile. Tenders were invited immediately thereafter, and on August 2, 1951, a contract was let covering the clearing, grading, installation of bridges and culverts, and erection of a temporary telephone circuit, for the full length of the new line.

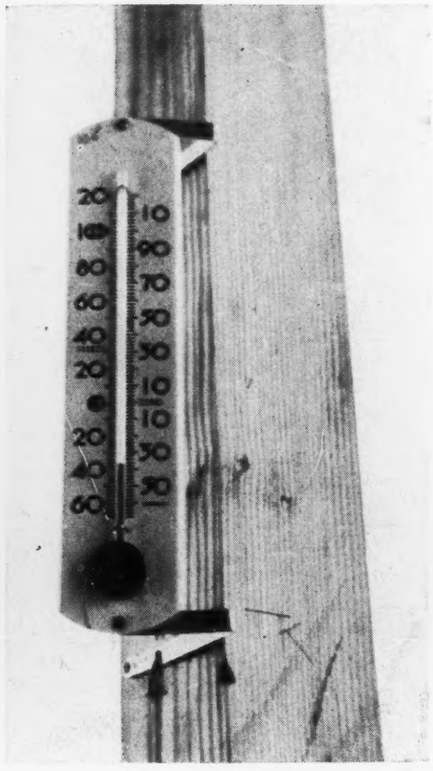
Clearing was started immediately and grading commenced from Sherridon by the end of September. By the end of 1951 the entire new line had been surveyed, and detailed location had been completed as far north as the crossing of the Churchill; approximately 21 per cent of the located right-of-way had been cleared; and 7 miles of roadbed graded. The objective is to have the line ready for service by October 1953.

This element of speed and urgency—to get the line into service and Lynn Lake into production—accounts for much of the relatively high cost of the line in relation to its character. One of the more difficult features, because of the inaccessible nature of the country, is the necessity for the contractor to place all equipment, supplies, fuel, camps, etc., at the working points by tractor during the winter months, to be ready for operation during the summer working season. The only access to the working points during the summer season is by helicopter, and therefore a great deal of meticulous planning was done to ensure that everything needed was freighted in by winter road.

Troublesome Crossing

The crossing of the Churchill river introduced a special problem because of the delay to construction which would be encountered while waiting for erection of the three steel spans. It was decided therefore to move the three unassembled truss spans, together with the contractor's erecting equipment, camp equipment, supplies, fuel, and cement for the concrete work, to the bridge site by crawler tractor train during the past winter. More than 1,400 tons of material, equipment and supplies were moved from rail-head at Sherridon to the bridge site, more than 50 miles, by tractor train in temperatures

The vagaries . . .



. . . of temperature.

ranging down to minus 60 deg. F., without loss or damage of a single item. When end of steel reaches the Churchill late this year the bridges will be ready, and track construction will proceed without interruption.

Since the life of the mine is put at 20 years, speed of construction, plus low first cost, are of paramount importance. The CNR will build the road to "minimum branch line standards, consistent with safe operation." Ruling grade will be 1.75 per cent, compensated in both directions. Maximum curvature will be 12 degrees, with the exception of three curves of 14 degrees approaching the Churchill river. Rail weighing 60 lb. per yard will be laid on untreated ties, with tieplates on the curves only. Untreated ties are being used because they are available locally and convenient for handling during construction. Treated ties will probably be used in the first replacement cycle, depending upon traffic conditions and forecasts at that time.

Location of this line in general, and particularly present grades and curvature, have been established so that an improvement of its operating characteristics can be made at a minimum expense in the future, if warranted by traffic conditions.

Sherridon lies at the end of a branch line of the former Hudson Bay railway (now CNR), leaving the Flin Flon line at Sherritt Junction (Cranberry Portage). This 42-mile branch is itself only 20 years old, having been built, at a cost of $2.6 millions, to serve the copper-zinc mine at Sherridon built by Sherritt-Gordon. This mine produced, through September 30, 1950, some $53 million worth of metals, representing a milled tonnage of more than 8 million, including copper, zinc concentrates, gold and silver.

Ore reserves at Sherridon, however, became exhausted, and the whole operation was shut down during 1951. Portions of the machinery and the houses of employees were moved by snow-tractor trains over 170 miles of winter trail (mostly frozen lakes and water courses) during the winter just past to the new Lynn Lake site.

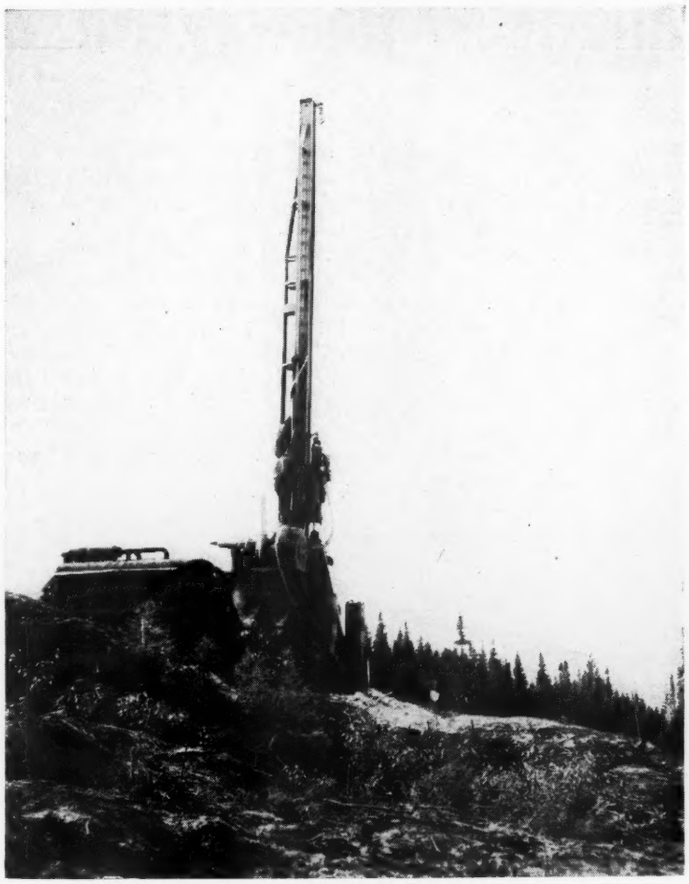
Traffic Bases

Before it sought government authorization for the line, the CNR management had before it a complete analysis of traffic prospects, signed by its mining engineer, a research engineer and its vice-president of research and development. Advice from the mining company was that its concentrator would treat a minimum 2,000 tons of ore a day (or outbound tonnage of about 100,000 tons a year)—the nickel ores going to its new Fort Saskatchewan plant, and copper concentrates to Flin Flon. Possible additional traffic not taken into account in the estimate is the movement of fish produced in some 28 lakes along the new line, of which some 2,700 tons are currently produced each year for U. S. markets, being transported to the railhead at Sherridon by tractor trains during the winter. Completion of the extension might raise this production to as much as 4,500 tons a year.

Early this year the CNR ordered four 1,200-hp. diesel units from the Canadian Locomotive Company, which, upon expected delivery in August, will be placed in work train service on the new line. When the road is completed they will be permanently assigned thereto. Because winter temperatures drop to 60 deg. below, the units will be equipped with special fuel-oil heaters.

It is expected that tri-weekly mixed train service in each direction will be sufficient to handle all available passenger and freight business. These consists will be handled by two 1,200-hp. units coupled.

International Harvester bulldozer makes short work of overburden.



Ingersoll-Rand "Quarrymaster" drills holes to depths of 70 ft. for dynamite charges in armor-plated Lauretian shield.

Trestle construction started last winter, way ahead of steel laying.

Photos by George Hunter, Canadian Metal Mining Assn.

From Lac Tio's open pit ilmenite mine . . .

. . . to the former fishing village . . .

New to the railway business is F. E. Walling, general manager of the Q.I.&T. Corp. (Canadian operations). He is a former U. S. Steel man.

The Romaine River . . .

A Brand-New Railway for a

In 1941 a geologist went into the Lake Allard country north of the St. Lawrence and confirmed trappers' rumors that there existed a large body of ilmenite (iron and titanium). But some way was needed to make this ore commercially useful. In this endeavor, two old U. S. hands at extracting and treating ores teamed up and in 1948 formed the Quebec Iron & Titanium Corp.—owned two-thirds by Kennecott Copper Corporation and one-third by New Jersey Zinc Company. Called by the magazine Fortune "an economist's dream of creative enterprise, 1952 model," Q.I.& T. is not only "a new mine, a new plant, a new process and a new product." It is a new railway as well—27 miles of it, costing $7.5 million, out of the total of $35 million expended on all facilities by Q.I.& T. to date.

Called the Romaine River Railway—and a plant facility, not a common carrier—titanium's new railway terminates at the village of Havre St. Pierre, Que., on the north shore of the Gulf of St. Lawrence, opposite Anticosti Island, and about 120 miles east of Seven Islands, terminus of the iron-ore-bearing QNS&L. Havre St. Pierre (which is north of most of the island portion of Newfoundland, and as far east as Nova Scotia) was, until two years ago, a small fishing village, not shown on Rand McNally's standard maps. Now it is booming like the Klondike of 50 years ago.

From this new $3.1 million transshipment port, the railway runs north 27 miles (12 miles of muskeg and 15 of rock country) through absolute wilderness to the Lac Tio orebody, said to be the newest, largest and richest known ilmenite deposit in the world. Reserves of 125 million tons of ilmenite have been proved there and estimates indicate more than 300 million tons total.

Presently, Lac Tio is a typical open pit mine, operated by bulldozing, blasting and shoveling. A crusher is about to be placed in service.

The Romaine River is laid with 100-lb. rail—which is already appearing to be too light for the nature of the road's traffic. Its construction included an 880-ft. steel bridge across the Romaine river and 168 ft. across the Puyjalon river. At the northern end of the line a 700-ft. tunnel was driven through solid rock. Sand was used as original ballast, for the most part, but it is being replaced by screened crushed rock as rapidly as possible. The road is subject to extraordinary extremes of weather, and is laid on an unstable terrain. High water conditions have already shown the necessity for further work on culverts and more extensive ditching, although there have been no serious washouts as yet.

Rolling stock of the Romaine River is as follows:

3	1,000-hp. road-switcher diesel locomotives (Montreal Locomotive Works)
40	ore cars (60 tons' capacity) (20 more on order)
4	flat cars
2	tank cars for fuel oil
1	passenger coach

. . . Havre St. Pierre . . .

. . . runs a brand-new 27-mile railway, the Romaine River.

Brand-New Product

The railway was put in service in December 1950. Normal operation will extend about eight to nine months a year—April through November.

In 1951 the carrier hauled about 400,000 short tons of ilmenite ore in mine-run form. Normal operations during the current 1952 shipping season comprise:

3 trains daily, hauling 14 60-ton cars	2,520 tons
1 train a day hauling	280 tons
Total	2,800 tons

From Havre St. Pierre the ore is moved by water some 550 miles southwest to Sorel, Que., on the south shore of the St. Lawrence, 50 miles east of Montreal. There, in May 1949, Q.I.& T. began the construction of a new plant including an unloading dock and furnaces. The first furnace was put into service in 1951.

At Sorel, Lac Tio ore (containing about 40 per cent iron and 32 per cent titanium oxide) is crushed and mixed with anthracite coal. The mixture is fed into an electrode furnace, powered by current from Shawinigan Falls, and comes out as iron and a slag containing titanium oxide. Most of the iron goes to Canadian steel mills, while the useful part of the slag is cast into slabs which are shipped out by rail or water to the titanium pigment industry.

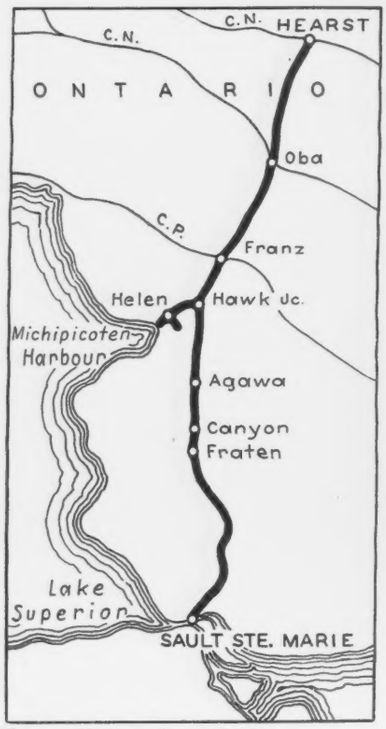
When full capacity is achieved, five furnaces will give the Sorel plant an intake capacity of 1,500 tons of ore a day, producing about 500 tons of iron and 650 tons of slag.

While titanium oxide has been used for paint pigment since the twenties, it is in the production of titanium metal that the biggest potentials lie. Titanium is said to be 70 per cent heavier, but 600 per cent stronger, than aluminum; and 40 per cent lighter than steel and of about equal strength. The world—especially the military aircraft industry—is demanding this "middleweight metal" even before it is in commercial production.

The future of the Romaine River railway looks good.

More than one-fifth of a mile of steel bridges were necessary to span the Romaine and Puyjalon rivers.

Now that the railway is completed, supplies and new mining machinery come by rail. Before then, tools were dropped by air at the mine end.



Photographic Survey Corporation Ltd.

From Helen mine, Algoma Central train carries loads of ore to . . .

Algoma Central & Hudson Bay . . .

A Timber and Iron Ore Railroad

Due north from Sault Ste. Marie, Ont., at the outlet of Lake Superior, there probes into deep wilderness a pioneer railroad still called, in deference to its original goal, the Algoma Central & Hudson Bay. This road lies in one of Canada's great new growth areas; in fact is largely responsible for that growth.

Construction on the road was started in 1899 north from the Soo for haulage of pulp wood and timber and for transporting iron ore from the Helen mine to Michipicoten Harbor. By 1913, the line was completed as it stands today.

In 1915 a bondholders' committee took over the property. They decided its future lay largely with progressive exploitation of iron ores to serve the needs of the Algoma Steel Corporation at the Soo. Their big problem was to find the money with which to improve a line constructed originally in cheapest fashion, with heavy grades, excess curvature, wooden bridges and culverts, poor rolling stock—in short "a contractor's line." Sparse though the traffic has been until recent years, the committee succeeded in building up the road to high standards for handling heavy, low-rated traffic economically. Capital expenditures since the close of World War II have been consistently higher than prewar:

1946	$ 388,000
1947	626,300
1948	445,200
1949	568,000
1950	495,200
1951	2,182,700

Added to the 1951 expenditures from railway funds, an amount aggregating $5,130,000 in equipment certificates and bonds was provided for new diesels and a new steamship

Several months ago the railway received its 21st diesel unit, and now is about ready to handle all service by this type of power. Annual savings, when dieselization is complete, may run close to $1 million. Fitting of the property to handle its rapidly increasing traffic load indicates that capital expenditures will be large during the next few years, according to company's annual report.

Beside the 21 diesel-electric units, currently operated, the company owned, as of the close of 1951, 16 steam engines; 98 box cars; 278 flat cars; 1,113 hopper and gondola cars; 1 refrigerator car; 18 passenger-carrying cars; 8 head-end cars; and 104 company service cars.

Gross rail freight revenue of the Algoma Central increased 33 per cent in 1951 compared with 1950. Only part of this resulted from the 12 per cent freight rate increase effective July 1951. Revenue freight traffic in 1950 amounted to 359,989,773 ton-miles—representing a 247 per cent increase over 1939 and 136 per cent over 1929, the height of the boom of the twenties. Traffic in 1951 was still higher—483,574,352 ton-miles.

Since the road's territory is almost completely without highways, even passenger traffic has increased in recent years. Recently passenger service was improved from thrice-a-week frequency to daily except Sunday over the entire line. Passenger-miles in 1950 totalled 4,023,411, a 104 per cent increase compared with 1939 and 32 per cent compared with 1929. They went up still higher in 1951—to 5,180,987 passenger-miles.

Of the total of 3,729,234 tons of freight carried by

. . . sintering plant at nearby Jamestown.

the Algoma Central in 1951, 53 per cent was iron ore. Mine products as a whole (not processed) made up 63 per cent of its load and forest products another 16 per cent. The road's chief customer is the Algoma Steel Corporation at the Soo. For it, the railway moved 1,331,837 tons of iron ore (sinter) in 1951, an increase of 89 per cent compared with 1949. An increase of a million tons now being made in Algoma Steel's furnace capacity may mean, eventually, the movement of 5 million tons of materials a year, a substantial portion of which would be handled by the AC&HB.

The chief source of ore at the present time is at the steel corporation's Helen and Victoria mines, located on the branch. Most of their production of sinter moves down the branch to Michipicoten harbor, where it is transshipped into the railway's vessels for export by water to Lake Erie and Lake Michigan ports.

In 1939 the railway completed at Michipicoten Harbor a belt-conveyor ore-loading plant, with a capacity for delivering over 1,500 gross tons per hour to vessel holds. Presently the ore-handling facilities are being still further improved, and storage capacity enlarged, in preparation for increased production of iron sinter by Algoma Steel. These improvements are planned for completion by the opening of navigation in 1953, and will cost about $400,000. In 1930 the railway completed a modern facility at Michipicoten capable of unloading from lake vessels to railway cars more than 500 tons of coal an hour, using a single bucket.

In 1951 some 804 thousand gross tons of sinter iron ore moved out of Michipicoten in the railway's own fleet of bulk freighters.

In 1951, 431,126 net tons—or 27 per cent of Algoma's ore traffic—moved all-rail to the Algoma Steel Corporation at the Soo. Algoma Steel is constantly increasing its demands on the railway. Its mining subsidiary increased its production capacity from 300,000 gross tons annually in 1939, to well over 1 million in 1950.

Other sources of ore supply along the railroad are being opened up rapidly, by reason of new discoveries made only in recent years. A property called Siderite Hill contains an estimated 200 million tons of good ore. The so-called Goulais Range is believed to contain 150 to 200 million tons. Some years ago, exploratory work indicated the existence of copper also along the Michipicoten branch. This work is now being revived, in view of current demand and prices for the base metals. Claims are also being staked on adjacent government and railway-owned lands for uranium. U. S. steel companies are also becoming interested in the area served by the railway; Jones & Laughlin, for example, owns iron ore properties, development of which may start shortly.

Sintered ore (except that going all-rail to Sault Ste. Marie) moves to the railway's Michipicoten Harbour, where complete facilities operate for rail-water transfer of ore and pulpwood outbound, coal and other necessities inbound.

Pacific Great Eastern territory abounds in mountains. Here it crosses the Fraser river above Lillooet, B. C.

Pacific Great Eastern . . .

British Columbia's Development Road

Sometime this year the Pacific Great Eastern is expected to put into freight service a brand-new 82.5-mile extension from its present northern terminus at Quesnel, B.C., to a junction with the CNR at Prince George. This is the largest new railway line project to be completed in Canada for years. Its cost comes to about $14 million, of which $13 million was paid by the province of British Columbia—which owns and operates the PGE—while a subsidy of $15,000 a mile has been granted by the dominion government.

Completion of the new line not only puts the PGE in a position to interchange traffic with the CNR to the north, but also brings nearer the day, according to some observers, when the railway will serve as a link in a strategic rail route from the U. S. to Alaska. Such a line north from Prince George through the natural Rocky Mountain trench was considered in the early part of World War II, but the plan was dropped when it was clear that this country had succeeded in fending off Japanese invasion through Alaska. In view of present relations with Soviet Russia, whose first natural target in North America would be Alaska, the building of a rail line to link Alaska with the U. S.—from which it is now isolated—is again a live issue.

More likely than the Alaska extension, however, is continuation of the PGE northeasterly about 270 miles beyond Prince George to Dawson Creek, end of steel of the Northern Alberta railways, in the Peace river country east of the Rockies.

With the start of service through to Prince George the PGE will end one factor which has thus far discouraged full potential traffic development in a rich area. The other factor yet remains: a gap of some 36 miles separating Squamish, the southern terminus of the road, from Vancouver and connecting railways. At present this gap is bridged for passenger service by vessels of the Union Steamship Company (in which the CPR has a 51 per cent interest) and by carfloat service provided by the PGE itself, with equipment borrowed from the CPR during peak seasons.

In 1950, the British Columbia premier told the legislature he would extend the PGE from Squamish into North Vancouver (where it would effect physical connection with a new terminal development on the north shore being pushed by the CNR). The federal government was to be asked to aid the project. Then, in December 1951 it was announced that the province would build a gravel highway instead to carry the railway's freight and passengers. Latest advice is that the legislative Railway Committee has differed with the government in power and recommended that further study be given to building both the highway and the railway link. If priority is to be given, it says the railway ought to have it.

In taking this attitude, the committee pays heed to the contention of J. A. Kennedy, general manager of the PGE, who contends that trucks could not handle PGE freight because of the cost of rehandling at least once at Squamish, and again at Vancouver, if further rail movement were involved. Whereas a minimum highway suitable for trucks would cost at least $10 million to build, and would be more expensive to operate, the largest estimate for a rail link is $14 million.

PGE is a development road *par excellence*. A ride upon its triweekly passenger train, complete with sleepers, dining car and open observation, is a ride into some of the wildest, most beautiful mountain country in North America. South of Lillooet, its territory is without highways, and depends upon the PGE for every article of commerce whatsoever and for all passenger

carriage. The PGE even operates a twice-daily shuttle service for highway vehicles on special flat cars for 15 miles from Lillooet to Shalath. North of Lillooet the railway is paralleled in part by the old Cariboo road, built up from the Fraser during the great gold rush in the 1860's. Nevertheless, that territory is dependent almost entirely on the PGE for heavy inbound supplies. Among its big traffic are consignments of hardware, machinery, explosives and supplies for the gold mines. Gasoline and oil shipments into the Cariboo country thus far in 1952 have been more than double the volume in the same period of 1950.

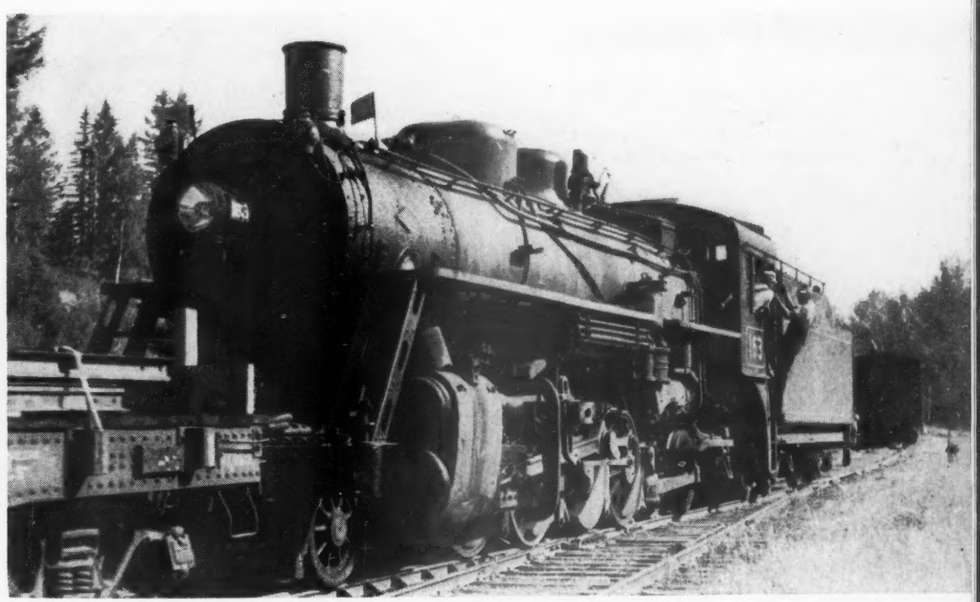
A Timber Area

Mountains, forest and lakes surround the line as far north as Lillooet. There, in the Fraser valley, variety is provided by orchards and farmland. To the north the railway climbs heavily forested mountains to the more open Cariboo cattle and gold country. Forests again take on along the extension beyond Quesnel. Practically all of the fast-growing timber production of the entire PGE area moves out by rail.

The PGE was incorporated in 1912 largely because the Grand Trunk Pacific, which was building its transcontinental line to Prince Rupert, promised to use the PGE as its link from Prince George to Vancouver, to compete with the CPR and the Canadian Northern. But after building a few miles, the contractors went broke and the provincial government had to take over the enterprise. The GTP itself ran into difficulties, and, in 1920, was taken over with other enterprises to form the CNR. Included in the combine was the rival Canadian Northern, with a direct route from Jasper to Vancouver (present CNR main line). Hence the PGE's status as a transcontinental link was doomed.

Since that time, however, the railway has done yeoman service, under adverse circumstances, as an in-

Alco-G.E. 600-hp. diesels paired pull the tri-weekly passenger. Most road service is dieselized . . . but six steam locomotives still help, largely in work-train service.



With opening of its new 82-mile extension from Quesnel to Prince George later this year, the PGE will, for the first time, have direct physical connection with another railroad. In the offing, maybe, is an extension to the Peace River district through country which the government of British Columbia is anxious to open up. More remote, though vital, is possible building of a railway north from Prince George to Finlay Forks and thence to Alaska.

The proposal to build a rail line south from Squamish to Vancouver is a matter of bitter debate. Meanwhile, passenger vessels and car floats on Howe Sound link the PGE with Vancouver.

Big machines mean few men in modern railway construction. Canyon Creek fill being made by Allis-Chalmers bulldozer (upper) and Caterpillar diesel tractor and LeTourneau grader (lower).

What a new railway grade in British Columbia looks like before it gets ties and rails.

dispensable frontier development railway. Its traffic has fluctuated widely, but moved upward over the long pull. Gradually the property has been upgraded. Today the bulk of road service is performed by diesel units—comprising five 600-hp. switchers and 8 1,600-hp. road-switchers—all Alco-G.E. or Montreal-G.E. The latter 8 are mounted on six-wheel trucks, to achieve lower axle loads. Six steam locomotives supplement their work, chiefly in work train service. Within the past several years, the PGE has spent more than $2.5 million rehabilitating its old line in a program involving tie renewals, concrete retaining walls, diversion of line to eliminate culverts and wooden trestles and ballasting.

The new 82.5-mile Prince George extension follows 38 miles of an old grade constructed back in 1920. The remainder is newly located largely to make possible a crossing of precipitous Cottonwood river nearer its headwaters, so as to avoid heavy grades on either side of the crossing. Involved in the job is relocation of the highway at four points where it utilizes the old railway grade which is more suitable for the new railway. The extension includes numerous stream crossings, heavy forestation and treacherous, unstable terrain in the valleys. It includes also two major steel bridges—one across the Cottonwood, 920 ft. long and 220 ft. high, and one across Ahbor creek, 1,250 ft. long and 155 ft. above water.

Despite the nature of the work, when a *Railway Age* editor visited the project in full swing in the summer of 1950, there was no evidence of the hell-roaring construction camps or mobs of imported labor that marked railroad construction only yesterday.

The project was divided among five "residences," each housed in tents and manned by about 15 engineers and helpers. Clearing of trees and brush was being done for the most part by local settlers—two men to each quarter square mile. Over the 40-mile stretch visited actual grading was being performed by a total of 40 men using heavy bulldozers, tractors and carryalls.

Construction started in March 1949. Despite the fact that most work has had to be discontinued during the winter seasons, by the end of 1951 all grading had been completed, 75 miles of track-laying completed and all except the Cottonwood bridge erected.

PGE has paid the penalty of a development railway. It has incurred operating deficits in practically every year of its life. In 1950, for example, it took in about $2 million and paid out $2.4 million—with an operating ratio of 131. But increasing business and modernization may turn the tide. Thus, in 1951, earnings went up 28 per cent, to bring in a total of $2.6 million. Expenses, in contrast (due largely to diesel power) went up only 0.6 per cent, so that the operating ratio was reduced to 120.8. Part of the better showing was due to the termination of extraordinary maintenance expenditures prior to the end of 1951, while they had been incurred throughout the whole of 1950.

Almost anything is possible when traffic is growing rapidly. The 266 thousand tons of revenue freight carried in 1950 represented an increase of 352 per cent compared with 1939 and 166 per cent compared with 1929, the peak year of the twenties. Ton-miles show up even better. The total of almost 54 million is an increase of 492 per cent over 1939 and 782 per cent over 1929! Total "paying loads handled" in 1951 were up almost 25 per cent compared with 1950 (12,482 compared with 10,002). Taking count of all cars handled through Squamish, the count in 1952 (up to the end of May) is almost 28 per cent higher than for the corresponding portion of 1951.

When the PGE has its head and tail, look out.

Brand-new plant of Canadian Johns-Manville near Matheson is result of new discoveries of asbestos along the ONR. Present annual production can be doubled.

Canadian Metal Mining Association

Noranda smelter and mine headframes at end of the ONR's Quebec branch. This is one of Canada's largest producers of copper and ranks third in gold production.

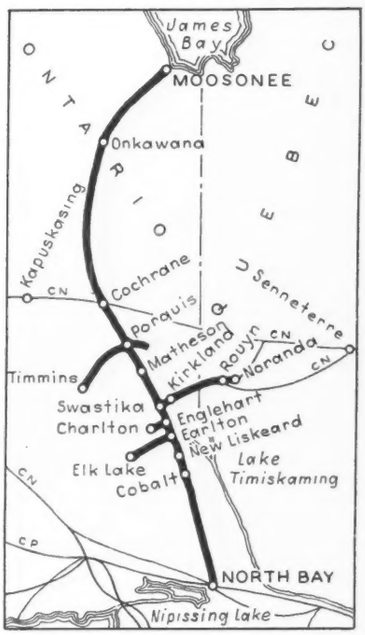
The Ontario Northland . . .

"Ontario's Development Road"

State-owned railways do not, as a rule, pay their way. This is so even in well-settled areas where traffic is made to order. It is even more so in regions where the traffic literally has to be created.

But breaking precedents is standard operating procedure for the 574-mile Ontario Northland. This road's name was changed from Temiskaming & Northern Ontario in 1946 because its management grew tired of its being confused with the Texas & New Orleans and having its cars move to the wrong "home." In round figures, the railway and its important ancillary services have cost to date some $45 million. Of this $30 million was advanced by the owning Province of Ontario, but $17 million have been returned to the provincial treasury. In other words, all but $13 million, of the $45 million total has come from earnings of the road.

Since 1924, no government money of any kind has been given to the railway for capital improvements, despite the fact that, subsequent to that date, it has financed a number of expensive branch lines, largely to open up new country. Under the original plan of government building and ownership, the province was to receive dividends from earnings. In 1924 that policy was changed to allow the railway to keep its surplus to finance improvements and extensions. This policy continues.



The main line of the Ontario Northland actually swings west from Porquis to Timmins, as far as traffic flow is concerned. North of Cochrane is the northern extension, served by the "Polar Bear," a bi-weekly mixed train.

Settlers' Railroad

The ONR's new diesels bear the crest of Ontario on their noses, largely because, at the turn of the century, a group of agriculturalists reached the clay belt of the north (in the vicinity of present-day New Liskeard) via the headwaters of the Ottawa river and immediately set up a howl for more direct transportation to the southern part of Ontario.

Private capital scorned to venture into what was believed to be an unproductive wilderness. In 1900 surveys and exploration began, and the Temiskaming & Northern Ontario Railway Commission was set up in 1902. Dirt was first turned near North Bay on May 10. The line was completed 110 miles north to New Liskeard in January 1905, and the first revenue train operated—except that discovery of silver-bearing rock, near Milepost 103, by subcontractors, in 1903, gave birth to hell-roaring Cobalt and to freight and passenger service rendered *by the contractors* in response to popular demand. From that time on, the road changed its goal from that of a settlers' link to civilization to a heavy-duty carrier of bulk products.

With this new purpose, the road moved steadily northward as mining operations expanded. Federal government financing of the National Transcontinental (now

Converted infantry landing-craft are the chore boys of the railway's lake boat fleet.

CNR) through 1,800 miles of wilderness across northern Quebec and Ontario encouraged building of the T&NO north to a junction with that east-west pioneer road at Cochrane by 1908. Gold in the Porquis area demanded the building of a branch in 1910-11. In 1922, work started on an extension 44 miles north from Cochrane to aid the building of a great hydroelectric plant at Abitibi canyon.

Meanwhile, the growth of gold and base metal mining east of Swastika encouraged the railway commission to construct an important branch through to Rouyn and Noranda. Construction, by stages, started in 1923: Rouyn was reached in 1927. Starting in 1928, the road was pushed further north, as money became available, and despite the special effect of the depression on a line dependent on raw materials for freight, was carried through to James Bay (arm of Hudson Bay), at Moosonee, in 1932. The 440-mile link to "The Bay" was complete.

Other Metals Discovered

Besides Cobalt, other famous north country mining names are linked with the ONR—Porcupine, Kirkland Lake, Virginiatown, Rouyn and Noranda. Express cars of the road have been carrying out valuable bullion from the gold and silver camps for almost 50 years—without loss, it might be added. Today millions of dollars worth are carried each month. The Hollinger mine was for years the largest producer of gold in Canada. Since 1910, it has produced wealth aggregating some $400 million. Its place has now been taken over by the Kerr Addison working at Larder Lake. The whole Kirkland-Larder field produced some $30 million worth of gold in 1951. The Noranda mine, in Quebec, added an impressive amount.

Development is as strong as ever. Cobalt, in the past, an almost worthless byproduct of silver-mining, has now proved to be a valuable, versatile metal—for which the U.S. can meet only about 50 per cent of its domestic needs. New markets are opening every day for the iron pyrites in which the region abounds. Immense deposits on the Noranda property yield elemental sulphur (of which there is a world shortage) and a pure iron sinter. Noranda Mines are now shipping ores in open top cars to Detroit, where the sulphur content is extracted, and residue sold to steel mills. This company is investing $4 million in a plant in the Niagara region, to be placed in operation in 1954, which initially will use some 100,000 tons of ore from Noranda each year. Asbestos (until recently produced exclusively in the Thetford area of southern Quebec) has now been found near Matheson and South Porcupine, on the ONR. Even in the still-wilderness area north of Cochrane, immense known deposits of lignite, china clay and gypsum are attracting attention.

Pulp and Paper

The original builders of the ONR had no inkling that paper would become the important category of traffic it now constitutes. About 25 per cent of the pulp and paper industry—Canada's greatest—is in Ontario, most of it in the north. In addition to timber and lumber, the ONR hauls two solid trains solely of paper products southbound every day.

Some of the heavy-producing mills on the CNR line west of Cochrane ship heavily via the ONR. The Spruce Falls Power & Paper Co., at Kapuskasing, for example, which supplies the New York Times, can ship newsprint from "Kap" on Monday and have it on newsstands in the big city the next Saturday. Each year about 350,000 tons of newsprint, sulphite and crepe wadding move from Cochrane to North Bay. Inbound to the mill comes a daily flow of alum, caustic soda, chlorine, lime and sulphur. This company is planning to spend another $5 million to increase its production by 12,000 tons a year. The Abitibi Paper & Pulp Co. ships out enough to fill 32 box cars a day. Its Smooth Rock Falls plant alone (on the CNR) consigns 210 tons a day of bleached pulp over its own three-mile long Mattagami railway, a chartered company.

As O. T. G. Williamson, the ONR's public relations officer, emphasizes in his book "The Northland," it is a myth that the country served by the road is suitable only for prospectors and trappers and that it grows less productive as you go north. As a matter of fact, the rockiest part of the country is the first 100 miles out of North Bay. North thereof it enters a rich clay belt.

Although it is growing more self-sufficient, the "north country" served by the ONR and its population of about 100,000 still draw heavily upon the "outside." Heavy machinery moves north at the rate of 100 carloads a month. Each month, the road moves in between 350 and 450 carloads of coal and coke. Gasoline accounts for another 200 cars. To feed and refresh the hard-working population, the ONR moves north, each month, 100 carloads of mixed groceries, 150 loads of fresh fruits and vegetables, and between 90 and 100 carloads of beer.

South, out of what was once thought to be unproductive wilderness, come, over the rails of the ONR alone, each month, 2,300 cars of woodpulp; 1,350 cars of paper; 720 cars of lumber; and some 900 cars of copper, zinc, asbestos and pyrites.

The frontier aspect of the ONR is most evident north of Cochrane, where there exist no roads of any description, and trapping is still the main occupation. The official bulletin of the province's highway department advises: "Motoring parties reaching Cochrane will be well-advised to park their cars and try the stimulating adventure of a trip on the 'Polar Bear' to Moosonee." The latter, a bi-weekly train, is perhaps the only officially named *mixed* train in the world. It carries three coaches, one of which includes a cafe section, several head-end cars and up to 30 freight cars. At Moosonee it is met by snowmobiles or by dog sleds. Indians ride on it just for fun. Southbound around Easter time it may have on board more than 6,000 beaver skins.

Mills like this at Moose River Crossing, only 45 miles south of James Bay, are encroaching on an economy which for 300 years has been based on furs.

Northbound oil and mixed supplies on the ONR. The road will be completely dieselized by 1955, with about 50 units.

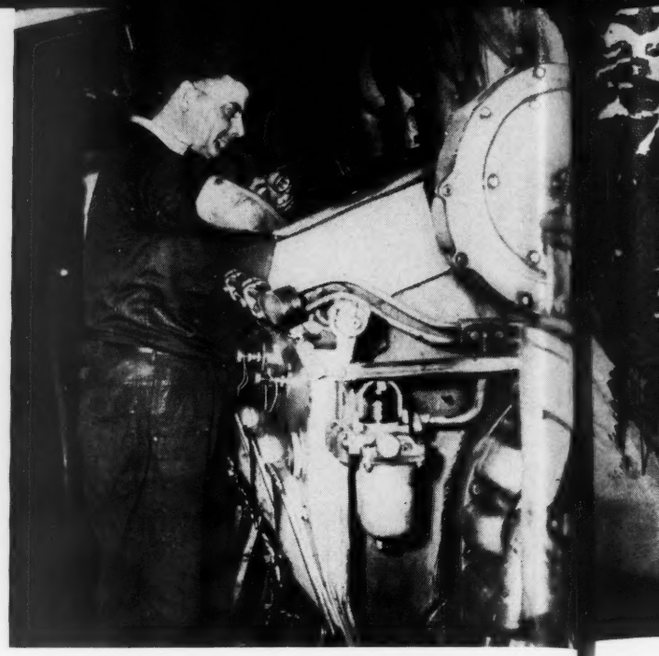
The ONR expects to be completely dieselized by 1955, with about 50 motive power units in service. Presently, in addition to 41 steam locomotives, it has in service 22 diesel units. All but one are equipped with multiple-unit control. A total of 13 are steam boilered for heating passenger trains. Eight more road units have been placed on order this year.

Being completed this year at North Bay is what is believed to be the first shop in Canada built new, as a self-contained unit, entirely to maintain diesel power. Auxiliary shops are planned for Cochrane and Timmins. The ONR owns 1,392 freight cars; 66 passenger including 1 rail motor; and 251 company-service cars.

World War II had a depressive effect on new mining development, although it created a brisk demand for production. Thus, during the conflict, traffic on the ONR increased only moderately, while the large trunk lines enjoyed unprecedented business. Conversely, when traffic dropped off elsewhere at the end of the war, ONR business increased sharply, and it has continued to do so ever since. Gross revenues in 1951 were $12.9 million, compared with $8.9 million in 1946. Ton-miles in 1951 totaled 572 million, 103 per cent greater than in 1939 and 122 per cent above 1929, the peak year of the twenties.

Development of its area is a major preoccupation of the railway. Even its sprightly semimonthly magazine "The Quarterly" is more a promotional piece for northern Ontario than a family gossip periodical. More than a third of its distribution is outside the railroad. Its file constitutes a complete geography of the area served by "Ontario's Development Road."

A diesel-powered CNR freight train making a meet at Oba, Ont., with the steam-powered "Continental Limited."



A 5,000-mile inspection of the cylinder-head mechanism of a CNR diesel road locomotive.

Canada, Too, Is Going Diesel

Each of two principal systems carrying out a five-year plan—CPR completely dieselizing selected territories; CNR majoring on through-freight service

The first demonstration in America of the practicability of the diesel-electric power plant as a locomotive prime mover was made in Canada. Locomotive units Nos. 9000 and 9001 of the Canadian National were placed in service and tested in 1928. While somewhat ahead of their time, these units constituted a usable locomotive which remained in service intermittently until 1946.

Traffic conditions in Canada, however, did not provide a locomotive market such as was afforded in the United States. It was this market, which permitted the development of production-line methods of manufacture of standard lines of locomotives, which had much to do with bringing prices within economic limits.

The extensive application of diesel-electric motive power to road haulage on the Canadian railroads has coincided approximately with the period of rapid traffic expansion which these roads are now experiencing. Contrary to the evolution of diesel road service in the United States, which began on de luxe high-speed passenger trains and was later extended to freight service, the road diesels in Canada were first assigned to freight service. There are two reasons for this. At the outset, there was a lack of confidence in the ability of the limited steam-generating capacity installed in diesel passenger units to provide adequate heat for long passenger trains in the severe Canadian winter climate. Furthermore, freight service offered the best opportunity for the new power to earn a satisfactory return on the investment. This attitude is gradually changing.

Dieselization has made substantial progress on the Ontario Northland, the Algoma Central & Hudson Bay, and the Pacific Great Eastern. The Quebec, North Shore & Labrador will be completely dieselized when the road is opened. Four of its locomotives of the road-switcher type were delivered last fall and are in service in construction work.

As to the two great railway systems of Canada, complete dieselization is not an immediate objective of either. While neither road contemplates the purchase or building of further steam locomotives, the many branch lines over which traffic movement is light during most of the year will continue to be operated by steam for an indefinite period. Both roads are also keeping their eyes on the future possibilities of gas-turbine developments.

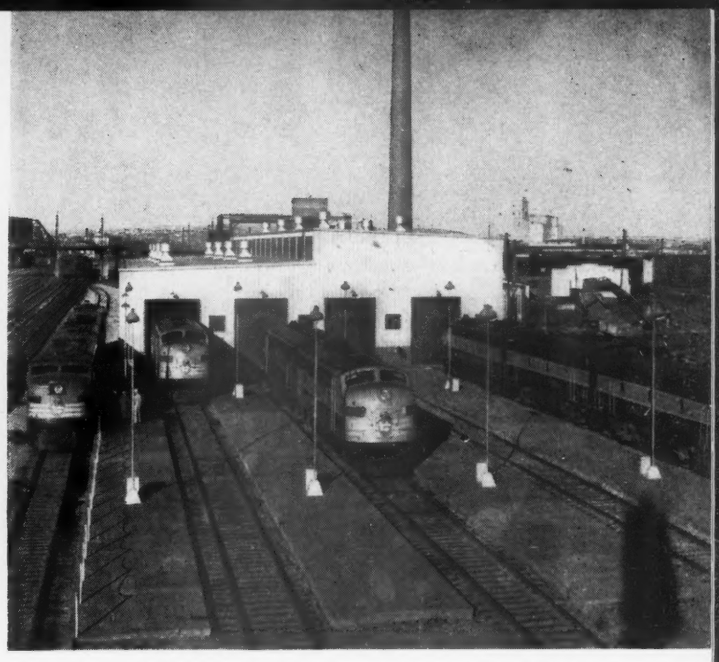
On the Canadian Pacific

The CPR is now in process of carrying out a five-year plan of dieselization which, including commitments for shop and servicing facilities, involves the expenditure of approximately $68,000,000.

This road's experience with diesel-electric motive power began in 1943 when the first diesel switchers were placed in service. Five years later the first dieselization of a complete territory was accomplished when 13 road switchers were assigned to the Esquimalt & Nanaimo. This subsidiary is on Vancouver Island, B. C., and offered an ideal setting for testing the capabilities of the new motive power without interference with the main line.

The next step was made that same fall when the road was faced with the necessity of improving the motive-

On the Schreiber division of the CPR, extending around the north shore of Lake Superior.



The new million-dollar Alyth diesel servicing shop of the CPR at Calgary, Alta.

power situation on the 172-mile line from Montreal to Wells River, Vt. Between Farnham, Que., and Newport, about 65 miles, freight trains were double-headed in both directions.

Orders were placed for 23 diesel-electric units which were delivered during the next year (1949). Through-freight service is handled by 12 1,500-hp. units, and trains move through in both directions without helper service. Three 2,250-hp. units are assigned to the Montreal-Boston passenger service, which is handled jointly with the Boston & Maine, with power assigned in proportion to line mileage.

Near the end of 1949 the CPR placed orders for 58 diesel units for freight service on the Schreiber division, which extends around the north shore of Lake Superior from Cartier, Ont., to Fort William. This is a somewhat rugged line, 517 miles in length, and eastbound traffic is heavy when lake navigation is closed. Its dieselization was the first project in the 1950-54 five-year plan announced by the railroad in 1950. During the lake navigation season, when traffic on the line is relatively light, the service of the locomotives in this pool is pushed further east toward Toronto and Montreal.

The next CPR project was based on road tests with a four-unit locomotive in freight service over the Laggan and Mountain subdivisions between Calgary, Alta., through Field, B. C., to Revelstoke, 262 miles of heavy mountain grades. The tests were made during the winter and orders for 28 units for use in this territory were included in a total of 40 units ordered during the summer of 1950. These locomotives were in service during the winter of 1950-51 and orders for 38 additional units are being delivered this year. When these deliveries are completed, this territory will be completely dieselized, including passenger service, and the railroad will have an inventory of 282 diesel-electric units.

Intensive study is now being given to plans for dieselization of the Kootenay and Kettle Valley divisions, between Crowsnest, B. C., and Vancouver. This line is roughly parallel to that from Calgary to Revelstoke, but further south and close to the southern Canadian border. The entire district, comprising six subdivisions and part of another, is 749 miles long and, except for the 87 miles into Vancouver, is mountainous.

On the CPR annual savings in certain selected items of operating expense (after deducting increased carrying charges) indicate a return on investment ranging from 9 to 20 per cent, depending upon the territory and the nature of the operations.

The present plans of the CPR are to develop facilities for heavy diesel locomotive repairs at the Angus shops, Montreal, and the Ogden shops at Calgary. These shops will take care of heavy repairs to locomotive units.

Seven secondary repair shops are projected. These will be at Montreal (St. Luc), Toronto, Chapleau, Ont. (on the Schreiber division), Winnipeg, Calgary (Alyth), Nelson, B. C., and Vancouver.

On the Canadian National

As the result of more than a year's study, the CNR has projected a five-year program of dieselization, in which the applications planned are expected to produce savings that will pay off the investment in 10 years or less. The program envisages the progressive dieselization of services where relatively intensive utilization can be obtained, rather than complete dieselization of territories. By proceeding in this manner, the CNR expects to achieve a better return on capital investment, at least in the initial stages of dieselization. The five-year plan is, therefore, generally confined to through-freight runs where good utilization is possible, and switching assignments where the locomotives can be used at least 16 hours a day. Some main-line passenger runs are also to be dieselized in the later stages of the five-year plan.

At present prices the program will call for an investment of approximately $100 million. On completion of the program, it is anticipated that approximately 66 per cent of the through-freight gross ton-miles, 78 per cent of the yard-engine hours, and 13 per cent of the passenger train-miles will be diesel operated, assuming a modest increase over 1949 traffic level.

A further program with respect to the dieselization of CNR way-freight and branch-line services is still in the process of development. It is in such services that the oldest and lightest steam power is used so that the program must be related to the replacement of this power. The class of roadbed and bridges often limits axle weights, necessitating the use of smaller diesel units or six-wheel trucks. In this type of service the policy to date has been to completely dieselize a branch line or territory, using the released locomotives where possible in other services of the same character.

Diesel freight locomotives, in no case exceeding two

units, are in through-freight service between Halifax, N. S., Saint John, N. B., and Montreal, via Moncton, N. B., and Edmunston (800 miles). The service consists of two trains daily each way between Halifax and Montreal and one train daily each way between Montreal and Moncton, and between Moncton and Saint John. There are 30 units in this service.

Dieselization of the line between Gaspe, Que., and Matapedia (with terminal at Campbellton, N. B., on the main line 12 miles east of Matapedia) is one of the two branch-line applications referred to above. The 15 1,200-hp. road switchers which have been assigned are sufficient to completely dieselize train services on this line and also in off-peak periods to handle some traffic on other lines out of Campbellton. Heater cars are employed with the locomotives for passenger-train heating on this line, and also on Prince Edward Island, the other CNR branch-line operation where steam power has been completely replaced with diesel.

Two through-freight trains are being operated each way daily between Montreal and Jonquiere, Que., on the Lac St. John line (307 miles). Eight units are assigned to this service. When this line was operated by steam, double-heading was required part way in each direction. A two-unit diesel locomotive handles the train through without help.

Three 1,200-hp. road switchers have been assigned to service between Montreal, Granby, Que., and Waterloo (61 miles). The service here is mostly passenger, with one freight train each way daily.

West of Montreal, a total of 28 units are in service between Montreal, Toronto, and Winnipeg. The diesels are used on two manifest freight trains each way daily between Capreol, Ont., and Winnipeg (931 miles). Diesels are operated on one train each way on the line from Capreol to Montreal (428 miles) and from Capreol to Toronto (276 miles). Another 20 units are operating in a pool between Montreal, Toronto and Sarnia, Ont. (514 miles).

The Diesel Fuel Prospect

At the end of 1951 the CNR had in operation in Canada 68 road freight units, 30 road switcher units, and 160 yard switch engines. At this time approximately 17 per cent of all through freight traffic on the system was being hauled by diesels. On order at the end of 1951 for use in Canada were 57 additional units—18 road freight service, 8 road switchers (completing the order of 15) for the Gaspe peninsula, and 3 for Newfoundland, and 28 yard switchers to be distributed widely over the system.

Four road-switchers of 1,200 hp. are also on order for the Lynn Lake line being built north from Sherridon, Man., to Lynn Lake, about 150 miles. Orders have been placed for 70 additional freight units for delivery during 1953. Beyond those on order for 1952 delivery, 28 1,500-hp. units are contemplated for passenger service and 103 switching units of 660 to 1,200 hp. The plans for purchasing road freight power are based on uniformly distributing the total number required by the plan over the next four years, the passenger power during 1955 and 1956, and switching locomotives during 1953, 1954, and 1955.

The CNR plans call for three heavy repair shops—Moncton, Montreal (Point St. Charles), and Winnipeg (Transcona). These plants, which now include the main steam locomotive repair facilities, will be gradually converted to take care of diesel repairs. The locomotive repair shop at Stratford, Ont., will be devoted exclusively to steam locomotives.

The Alberta oil fields are in the background of dieselization of the Canadian railroads. While the distance from this source of supply is too great to make it economical for the lines in eastern Canada, it covers much of the western lines so far dieselized and, in the case of the Canadian Pacific, is the source of supply as far east as Schreiber. The eastern supply is imported, either across the border or by water.

Both large Canadian roads are developing the use of diesel fuel to commercial specifications which are somewhat less restrictive than those which have prevailed in the United States. The Canadian National is experimenting on several diesel units with fuels with a sulphur content up close to one per cent and the Canadian Pacific is specifying .75 per cent.

Both roads are using commercial fuel with cloud point no lower than 0 deg. F. The CPR maintains exit heaters in the storage tanks. Some of its locomotives are running with insulated fuel tanks, others are fitted with hot-water heaters in the tanks, and others are running just as received from the builders. No failures are experienced from waxing of the oil with a minimum oil temperature of 40 deg. F. when delivered to the locomotive.

The CNR, as a general practice, is installing heaters in diesel fuel storage tanks. All road locomotives are being equipped with heat exchangers, using either engine-cooling water or lubricating oil as the source of heat. The heat exchangers are by-passed in summer. This arrangement requires an increase in circulating-pump capacity.

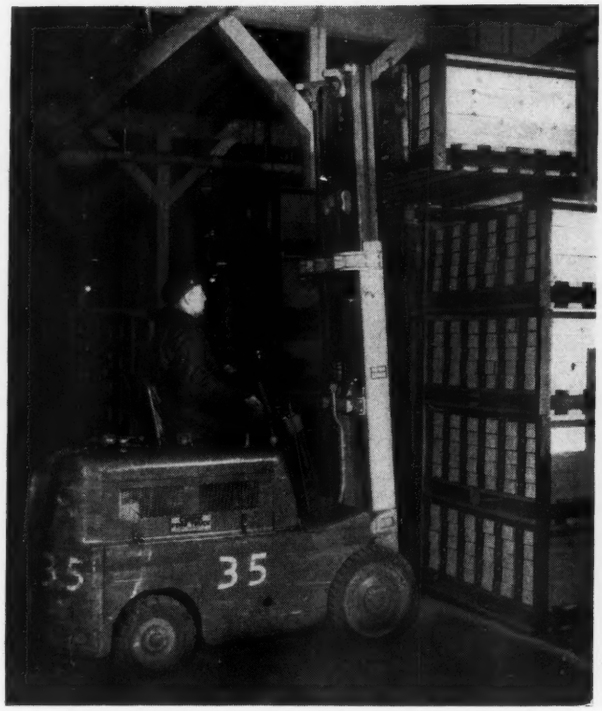
Canada Builds Its Own Diesels

When the Canadian Pacific placed its first order for diesel-electric locomotives in 1942 no diesels were being built in Canada, and until 1948 all Canadian orders for diesels were placed in the United States. Then the Canadian National placed an order for 20 diesel locomotives with the Montreal Locomotive Works. While Montreal assembled the locomotives, many of the parts were manufactured in the Unitel States. Late in the summer of 1949 Dominion Engineering Works began turning out the six-cylinder-in-line engine for switching locomotives built by Montreal Locomotive Works, and before the end of the year Montreal Locomotive Works, Canadian General Electric, and Dominion Engineering Works announced the near completion of facilities to build the complete line of locomotives of the Alco-G.E. type with a high percentage of Canadian-made parts.

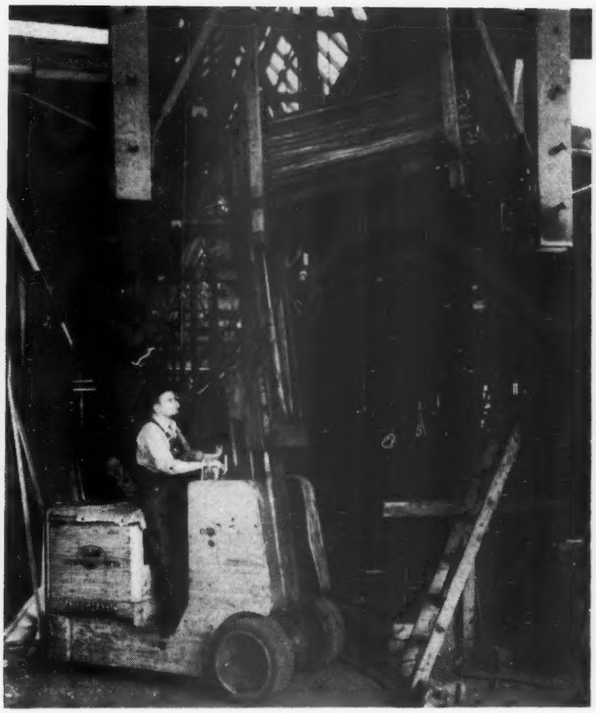
In August 1950 General Motors Diesel, Ltd., at London, Ont., completed a plant for the building of diesel-electric locomotives in Canada. Engines, electrical generators and motors are built at La Grange, Ill. Most of the rest of the locomotives are built in Canada.

On August 1, 1951, the first of a series of the "C" line diesel-electric locomotive to be built by the Canadian Locomotive Company, was turned out of the plant at Kingston, Ont., and the facilities of this plant have been expanded until now it is building the engines for the full Consolidation line of Fairbanks-Morse locomotives, the electrical equipment for which is furnished by Canadian Westinghouse.

Following the first order for 20 diesels to be built in Canada in 1948, Canadian diesel locomotive building advanced rapidly. In 1949, about half of the orders for 126 units placed by the Canadian railways were placed in Canada and the remainder in the United States. Since that year practically all locomotives ordered for railway service in Canada have been placed with Canadian builders.



Palletized section of storehouse at the Canadian Pacific's Angus shops (Montreal).



At the Canadian National's London (Ont.) car shops a fork lift truck delivers a complete load of steel roofing.

Canadian Railroad Buying And Storing Is Big Business

Most of materials and supplies purchased from Canadian firms—Stores departments turn over inventory each 120 days

While railroad purchasing and stores departments cannot themselves materially improve the quality of the road's service to its patrons, if they do not perform their supply functions efficiently the quality of service will be poor indeed. The purchasing departments of the Canadian Pacific and Canadian National in 1951 spent approximately $375 million for fuel, materials and supplies, exclusive of cars and locomotives. In 1937, the total expenditures in similar categories amounted to about $108 million, less than one-third of the 1951 figure. Allowing for price increases since 1937, approximately $135 million of the 1951 purchases represents an actual increase in the physical volume of purchases in the period.

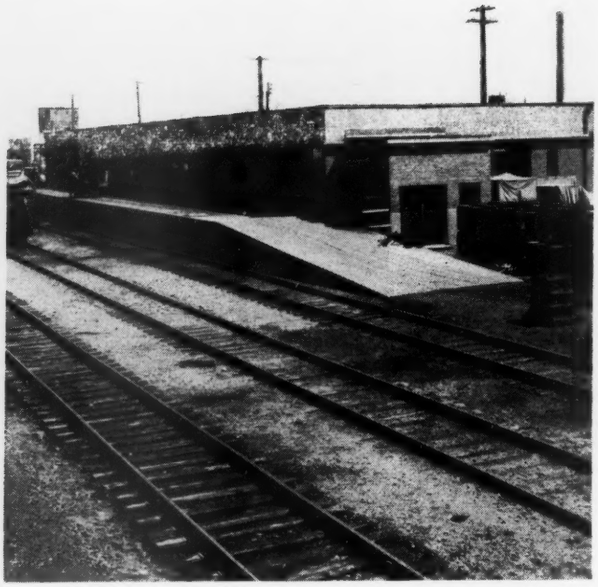
The CPR purchasing department spent about $281 per minute every day of the year. The Canadian National's 300-man buying force placed more than 264,000 orders (for 75,000 items) with approximately 10,000 firms in order to supply its needs. To do this work the two carriers have purchasing agents stationed at such strategic cities as Vancouver, Moncton, Winnipeg, Detroit, Toronto, Montreal and Halifax. The Canadian Pacific even has a purchasing agent in London, England. A substantial part of the buying of the two roads is done by these local purchasing agents.

The Canadian railways, spread out as they are over the breadth of the country, are themselves large users of their own transportation facilities in getting supplies to the points of use. In 1951, about 7.9 per cent of the total gross ton-miles produced by the two railroads was for transporting company material. In 1937, the Canadian National's ratio was 12.6, while the CPR's was 11.4. Thus both roads have made considerable progress in reducing this ratio. Partially this is a result of a spreading out of Canadian industry which often makes it possible for the railroads to buy closer to point of use, avoiding much duplicate hauling. More important, however, probably, have been the use of better materials, better utilization of what is bought, and better stock control.

The stores department installations of the two railroads are widely scattered over the country. The Canadian Pacific has six district and two general storekeepers, the CNR has 12 storekeepers (three general). Some 4,000-odd employees are required to handle and keep track of the supplies purchased by the two railways each year.

The storekeeper, like a freight agent, tries to handle

In the Canadian National's commissary store at Toronto, shelving is made of reclaimed steel box car roofing.



New storehouse of the CPR at its St. Luc yard in Montreal. Built especially to serve this new and important facility.

material as inexpensively as possible. The usually accepted standard of efficiency in stores handling, although not an entirely satisfactory one, is the ratio of expense to total value of issues during a given period. The two Canadian roads have been able to reduce this ratio slightly in recent years. Since the physical volume of purchases increased substantially between 1937 and 1951, it would be expected that more personnel would be needed to handle and issue the material. Nevertheless, the CPR stores department employed, in 1951, only about 59 per cent more employees than it did in 1937, while the CNR's increase was about the same, discounting employees taken on when, during the last few years, other functions were added to those performed by the department in 1937.

As the railways' traffic has grown, so has their need for facilities to handle company material. As a consequence it has been necessary, at some points, for them to build new facilities of various sorts, and to add to existing facilities to make better utilization of buildings and equipment. At Edmonton and Vancouver the CNR has found it necessary to build new stores, while additions have been made to facilities at Montreal and Winnipeg. In physical volume, material stored at Edmonton today is almost 300 per cent of the volume in 1937.

Vertical Storage Trend

The CPR also has had to add new facilities, one of the more recent of which is the new stores at its St. Luc yard in Montreal, while another new storehouse was opened at the Glen coach yard near Westmount. The railways have found that modern materials handling equipment enables them to make some of their expansion of stores facilities in a vertical rather than a horizontal plane. In storage work, if modern equipment is used for handling, vertical expansion is considerably less expensive than horizontal.

One of the important jobs of the purchasing and stores departments of the railways is the gathering, sorting and sale of scrap metal. In 1951, the Canadian National and Canadian Pacific stores departments collected and sold to steel mills more than 400,000 tons of scrap iron and steel and 12,000 tons of non-ferrous scrap. This salvage of iron and steel scrap conserved about 800,000 tons of iron ore, 400,000 tons of coal, and 200,000 tons of limestone in the production of new steel. The CNR has been taking part of its scrap each of the past several years for making steel shelving for its storehouses. That shelving is made from roofing of old box cars condemned as unfit for further service.

Research and Test Department

A valuable adjunct to—but not a part of—the Canadian National's purchasing department is the railroad's research and test department. One of the duties of this department is to help the purchasing and using departments set up specifications for the many types of materials and supplies used by the railway. This might be called an effort to get the best possible material with the minimum amount of cash outlay. CNR officers say that this department is saving the railway untold amounts of money and, by helping the using departments get good materials, is definitely contributing to the better service that the railway's customers are demanding.

The Canadian railways are well served by the country's supply industry, so well served, in fact, that in 1951, for example, the Canadian Pacific purchased more than 90 per cent of all its materials and supplies in Canada.

Diesels are helping Canadian railways to improve performance and cut costs. Since the twenties some freight schedules have been reduced as much as 40 per cent.

Goal of Canadian Roads Is Dependable Performance

Terminal expansion to meet flood of business is one of first considerations—Severe weather balks improvements in schedules

Like their counterparts in the United States, the two major Canadian railroads in recent years have improved their efficiency greatly, thus contributing substantially to the relative cheapness of rail transportation in Canada. For instance, since 1937 the Canadian National has increased the average number of miles per serviceable freight car day by 30 per cent, while the Canadian Pacific has raised the number of gross ton-miles per freight train-hour by about 10 per cent. Freight train running times have been reduced, and barring the tough winter months—when for much of Canada merely getting the tonnage to destination is something of an accomplishment—on-time performance of manifest freight has been improving, especially in the last two years.

The job the Canadian railroads have been called upon to do in the past 15 years has grown tremendously. Since 1937, total ton-miles (revenue and non-revenue) per mile of road have increased about 127 per cent for the CNR and 129 per cent for the CPR. In the same period express shipments handled by the CPR and the CNR have gone up, respectively, 134 per cent and 111 per cent. Heavier loads per car and increased freight train speeds have contributed, in part, to this performance, although this is by no means the whole answer.

Another indication of the size of the job the railroads are being called upon to do is the increase in the number of cars handled at major terminals. Volume has grown so that at some of these terminals the roads at times have the appearance of "bulging at the seams." Just as one example, at Montreal the CNR in 1951 handled about 5,856 cars per day, compared with 3,057 in 1937, an increase of 93 per cent. In the same period the number of switch engine-hours jumped 98 per cent. This of course is a decrease in the number of cars handled per switch engine-hour, reflecting overtaxed yard facilities and the necessity for increased industrial switching, which requires more handling of each car.

At Winnipeg and Vancouver the CNR's switching efficiency has gone up, 1951 over 1937, 14 and 33 per cent, respectively. Turcot yard, for many years the railroad's main yard in the Montreal area, is now sur-

(Continued on page 156)

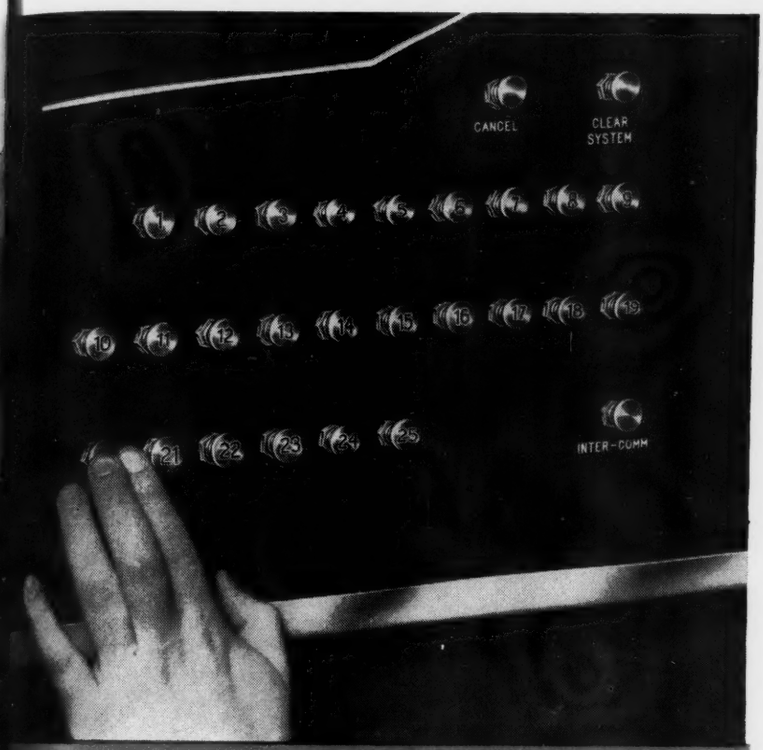
On The Milwaukee Road

"UNION" AUTOMATIC SWITCHING

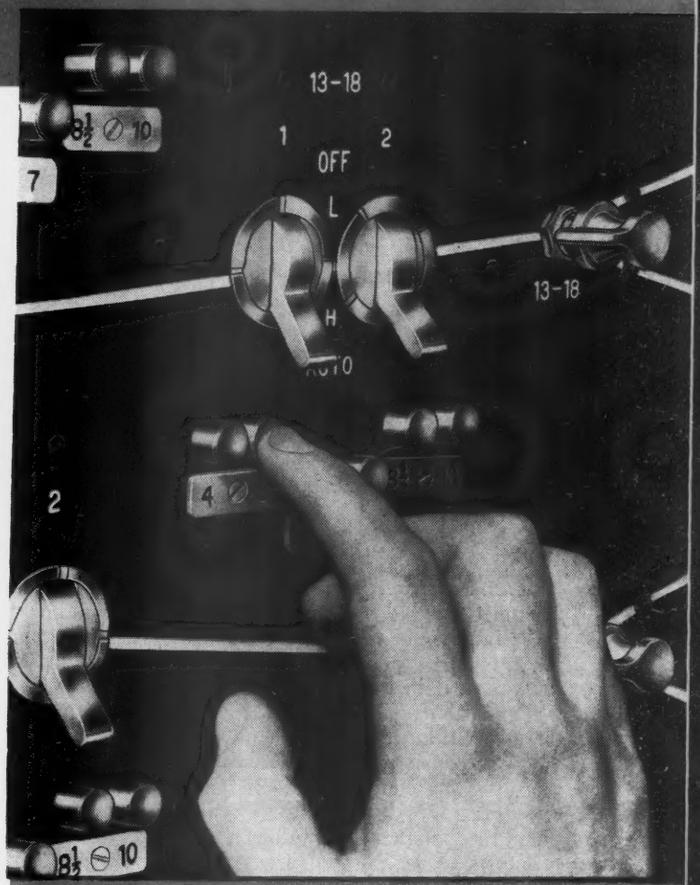
Expedites Car Classification at Air Line Yard

Only one machine is required to control switches *and* retarders in this 25-track yard.

and RETARDER SPEED CONTROL



To route a cut to the desired classification track, the operator merely presses one push button . . . *"UNION" Automatic Switching* correctly lines the switches as the cut proceeds to its designated track.



With "Union" Retarder Speed Control the operator merely presses the push button marked for the speed at which the cut is to leave the retarder. The proper braking action is produced automatically.

WITH the volume of traffic constantly rising, and adequate yard expansion prevented by natural barriers . . . delays at Air Line Yard in Milwaukee, Wis. were reaching serious proportions, and economical classification was impossible.

That's why the Milwaukee Road installed "Union" Automatic Switching and Retarder Speed Control. Minimizing the time and attention required by the operator to control switches and retarders, these modern systems promote efficiency . . . reduce delays . . . and afford greater utilization of available yard space. Most important, they permit maximum concentration of switch and retarder control, giving the Milwaukee an effective new weapon to fight the constantly rising costs of classifying freight cars.

May our representatives show you how "Union" Automatic Switching and Retarder Speed Control can fit into your classification picture?

UNION SWITCH & SIGNAL

DIVISION OF WESTINGHOUSE AIR BRAKE COMPANY

SWISSVALE PENNSYLVANIA

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO

One of the finest—and largest—freight stations on the continent is the Canadian National's new Bonaventure station in Montreal. It can handle 284 cars.

(Continued from page 153)
rounded by industry and dwellings to the point where it is impossible greatly to expand the yard. As reported in this issue, plans are under way for building a new hump yard in the Cote de Liesse area of Montreal.

More than a year ago the Canadian Pacific opened its new St. Luc hump yard in Montreal, one of the most modern yards in North America. The CPR had been faced with somewhat the same situation as the CNR in needing more capacity than could be provided by old facilities. Both roads still have yard and terminal troubles to overcome. Operating-wise, reducing terminal costs is probably their number one problem.

The Plague of Winter

Especially in the West, the Canadian roads have difficulties during the winter months which hardly have a real parallel in the U. S. In a good part of Northern Ontario and the Prairie Provinces several hundred inches of snow per year is customary, and temperatures stay many degrees below zero for weeks on end. So cold is it that up to 50 per cent of normal tonnage may have to be cut from a train's scheduled rating. These conditions make operation expensive and performance "on the advertised" more than slightly difficult to attain. In 1951, removal of snow, ice and sand cost the Canadian National more than $5½ million, plus other large expenditures for fences and snow sheds. Therefore, in winter, the Canadian roads are satisfied if they can get the freight through with reasonable dispatch, and when they can make summer schedules they're more than happy.

In the summer the situation is somewhat different. In the past several years both roads have made intensive drives to keep their freights on time, and with considerable success. In some cases authorizing tonnage reductions helped considerably in improving this situation, but in the main such performances were brought about by supervisory help checking closely on all operations to see that no operational "bugs" appeared which would seriously delay the trains.

In recent years the Canadian roads like those in the United States, have been dieselizing their operations. The twin objectives of dieselization are, of course, improving service and cutting expense. On one run, between Montreal and Jonquiere on the CNR, partial dieselization reduced operating expenses on the trains involved by 60 per cent. Partly this was because the railroad was able to eliminate double-heading over this division; fuel and other savings accounted for the rest. The Canadian Pacific reports its savings at 20-40 per cent, depending on the character of traffic and the type of terrain over which diesel-powered trains move.

Handling L.C.L.

Trucking of l.c.l. in lieu of the peddler car and increasing mechanization of freight stations through the use of fork lift trucks and pallets, tractor-trailer trains, etc., are other means that the Canadian railways are using in their efforts to improve service and cut the cost of performing it. There are 50 stations in Canada equipped with devices to handle freight in unit loads. By the end of 1952 more stations will be so equipped.

Freight claims plague the Canadian roads just as they do carriers in the U. S. Nevertheless, the claim ratio of the Canadian railroads is considerably better than that of U. S. lines. In 1951 the Canadian ratio of claim payments to each $100 of gross freight revenue was 0.525 per cent (compared with 0.577 per cent in 1950). U. S. carriers had a 1950 ratio of 1.08 per cent, which went up to 1.11 per cent in 1951. One of the reasons for the relatively good record of the CNR and CPR is their loss and damage prevention activity. Each road has a strong prevention force which works with shippers and receivers, as well as the road's own employees, in an effort to keep loss and damage to the irreducible minimum.

The Canadian roads have the same problem as railroads in the United States, and possibly even to a somewhat greater degree, in getting official regulatory bodies to permit them to make enough money so that they improve their properties as they should be to keep pace with the booming Canadian economy. However, in spite of this situation, the railroad patron in Canada gets a "good deal" when he puts out his money for railroad transportation or service.

STANDARD ENGINEER'S REPORT

DATA

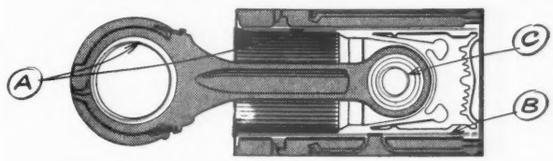
LUBRICANT	RPM Delo R.R. Oil
UNIT	Locomotive diesel engines
SERVICE	Freight and passenger
OPERATION	Local and transcontinental
MAINTENANCE	Progressive

One million miles of service from engine parts!

LUBRICATED WITH RPM DELO R.R. OIL, many diesel engines in the locomotives of U.S. railroads have been in service for long periods without complete overhaul! Many of the liners, pistons, bushings and other parts in these engines have now been in use for hundreds of thousands of miles. Progressive maintenance inspections indicate that RPM DELO R.R. Oil will keep the parts in service for at least one million miles, the general overhaul period set by some of the railroads.

RPM DELO R.R. Oil keeps parts clean and free of wear-causing lacquer and gum deposits and is not corrosive to engine metals of any kind.

How RPM DELO R.R. Oil prevents wear, corrosion, oxidation



A. Special additive provides metal-adhesion qualities...keeps oil on parts whether hot or cold, running or idle.

B. Anti-oxidant resists deterioration of oil and formation of lacquer...prevents ring-sticking. Detergent keeps parts clean...helps prevent scuffing of cylinder walls.

C. Special compounds stop corrosion of any bushing or bearing metals and foaming in crankcase.

IN OVERLAND MOUNTAINOUS FREIGHT SERVICE for nearly 500,000 miles, this liner, lubricated with RPM DELO R.R. Oil has less than 0.006 inch wear and taper is so minor that it is barely measurable.

THIS PISTON AND CONNECTING ROD have been in service for more than four years. After picture was taken it was put back in the engine for further use. Note the excellent condition of the rings and bearing. All the rings are free, oil holes open and there are no troublesome deposits in any ring grooves.

FOR MORE INFORMATION about this or other petroleum products of any kind, or the name of your nearest distributor handling them, write or call any one of the companies listed below.

RPM DELO LUBRICATING OILS

TRADE MARK "RPM DELO" REG. U.S. PAT. OFF.

STANDARD OIL COMPANY OF CALIFORNIA
225 Bush Street • San Francisco 20, California

THE CALIFORNIA COMPANY
P. O. Box 780 • Denver 1, Colorado

STANDARD OIL COMPANY OF TEXAS
P.O. Box 862 • El Paso, Texas

NEW and IMPROVED PRODUCTS of the MANUFACTURERS

Threaded fasteners to secure wood furrings to box cars and automobile cars being installed on corner posts and door posts by stud welding.

Canadian Stud-Welding Process

Stud welding is used by Canadian Car & Foundry Co. and the Canadian Pacific in the construction of box cars, automobile cars and refrigerator cars. The process employs lightweight Nelson stud welding guns, produced by Nelson Stud Welding Company of Canada, of Toronto, and distributed in Canada by Rudel Machinery Company.

It is said that this process enables two men to install the furring strips and retainer studs used to fasten wood liners to the car ends for a day's run of cars —a job that used to keep three hand welders busy. In addition to the manpower saving and decreased pressure in this operation, stud welding on corner posts and door posts has enabled one man to do work that previously required a crew of three, according to the manufacturer.

Precise timing and accurate positioning of studs by this welding process expedite installation of predrilled furring strips and prevent corrosion and leakage around the door posts, it is averred.

One of 1,000 Enterprise 70-ton longitudinal hopper cars that are designed for both ballast and commercial service and successfully tested on six Canadian railroads during the past 20 months.

A 70-Ton Longitudinal Hopper Car

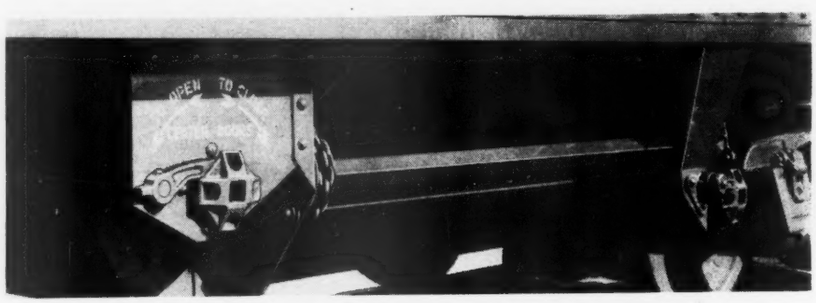
A new type of general-utility freight car for ballast and commercial service, developed by the Enterprise Railway Equipment Company, Chicago, has been successfully tested on Canadian railroads for the past 20 months. There are now 1,000 cars in service on six Canadian roads.

This car, known as the Enterprise longitudinal hopper, conforms in general to the standard Association of American Railroads 70-ton triple-hopper design and has almost the same capacity. The car design from bolsters to ends of the car is identical to the triple hopper except for modifications between the trucks. The interior of the car is free of load-interfering mechanism tunnels and crossties.

The four side doors are controlled at the ends of the car and the center doors are controlled from either side at the center of the car. The car is equipped with cross baffle plates to prevent flooding of rail in unloading.

The transportation and revenue features of this car have been given special consideration. The car has end slopes of 30 deg., which is A.A.R. standard for hopper cars, instead of the 36 deg. generally used on ballast cars. However, this slope is adequate where rock ballast is in general use.

This car, designed especially for use on railroads with a short ballasting season, may be used for commercial service the rest of the year. The longitudinal hopper is well adapted for handling bulk commodities subject to freezing as the large side doors make the lading easily accessible.



Details of the Enterprise mechanism which operates center doors of the longitudinal hopper door design, controlled from either side.

International's All-Purpose Bulk-Loading Door with grain loading and inspection opening. No inside grain door required.

Thanks, Canadian Railroads...

No country can be stronger than the faith and loyalty of its people. The same is true of a community, a family or an industry. One industry which has worked unselfishly and built tirelessly with implicit faith in the future of Canada is the railroad industry. To the thousands of men and women who *are* the railroads of Canada, we say "Thanks for helping to build such a good, powerful neighbor!"

International Steel Company

INTERNATIONAL STEEL CO. • RAILWAY DIVISION • EVANSVILLE 7, INDIANA

Selected Income and Balance-Sheet Items of Class I Steam Railways in the United States

Compiled from 127 reports (Form IBS) representing 131 steam railways

(Switching and Terminal Companies Not Included)

Income Items	United States For the month of March 1952	1951	For the three months of 1952	1951
1. Net railway operating income	$76,638,822	$80,312,072	$218,601,207	$178,597,150
2. Other income	16,899,372	19,916,987	51,174,296	57,194,791
3. Total income	93,538,194	100,229,059	269,775,503	235,791,941
4. Miscellaneous deductions from income	4,041,112	8,759,387	12,814,329	17,391,156
5. Income available for fixed charges	89,497,082	91,469,672	256,961,174	218,400,785
6. Fixed charges:				
6–01. Rent for leased roads and equipment	10,228,237	10,067,884	29,252,755	27,746,523
6–02. Interest deductions[1]	25,894,787	24,801,798	77,407,292	74,320,717
6–03. Amortization of discount on funded debt	240,639	235,746	719,888	667,377
6–04. Total fixed charges	36,363,663	35,105,428	107,379,935	102,734,617
7. Income after fixed charges	53,133,419	56,364,244	149,581,239	115,666,168
8. Other deductions	2,894,617	3,038,023	8,734,600	9,118,754
9. Net income	50,238,802	53,326,221	140,846,639	106,547,414
10. Depreciation (Way and structures and Equipment)	39,675,956	38,973,617	117,403,010	113,638,539
11. Amortization of defense projects	.....	.....	.....	.....
12. Federal income taxes	55,343,676	48,335,174	153,929,185	126,819,112
13. Dividend appropriations:				
13–01. On common stock	18,745,474	22,577,275	52,411,387	54,968,827
13–02. On preferred stock	3,720,306	5,550,476	27,226,107	44,672,139
Ratio of income to fixed charges (Item 5 ÷ 6—04)	2.46	2.61	2.39	2.13

Selected Expenditure and Asset Items	United States Balance at the end of March 1952	1951
17. Expenditures (gross) for additions and betterments—Road	$73,870,408	$67,109,528
18. Expenditures (gross) for additions and betterments—Equipment	271,134,284	215,136,535
19. Investments in stocks, bonds, etc., other than those of affiliated companies (Total, Account 707)	476,726,925	476,786,196
20. Other unadjusted debits	85,809,279	102,712,271
21. Cash	815,294,090	806,197,569
22. Temporary cash investments	810,362,030	952,538,725
23. Special deposits	83,068,384	127,261,519
24. Loans and bills receivable	1,435,062	1,652,727
25. Traffic and car-service balances—Dr.	61,891,126	61,152,595
26. Net balance receivable from agents and conductors	161,132,137	161,484,341
27. Miscellaneous accounts receivable	469,139,906	462,132,104
28. Materials and supplies	936,414,088	814,151,509
29. Interest and dividends receivable	15,916,414	15,498,744
30. Accrued accounts receivable	217,464,006	234,202,704
31. Other current assets	35,116,183	34,621,432
32. Total current assets (items 21 to 31)	3,607,233,426	3,670,893,969
Selected Liability Items		
40. Funded debt maturing within 6 months[2]	$180,222,490	$145,138,130
41. Loans and bills payable[3]	2,911,591	4,368,500
42. Traffic and car-service balances—Cr.	91,071,015	93,566,910
43. Audited accounts and wages payable	509,031,553	551,578,692
44. Miscellaneous accounts payable	200,156,017	234,752,069
45. Interest matured unpaid	60,450,967	61,415,746
46. Dividends matured unpaid	20,963,692	19,063,028
47. Unmatured interest accrued	76,198,153	73,813,564
48. Unmatured dividends declared	26,948,034	32,986,700
49. Accrued accounts payable	280,057,255	220,321,905
50. Taxes accrued	833,245,349	846,602,254
51. Other current liabilities	92,751,158	97,434,516
52. Total current liabilities (items 41 to 51)	2,193,784,784	2,235,903,884
53. Analysis of taxes accrued:		
53–01. U. S. Government taxes	667,166,606	690,261,658
53–02. Other than U. S. Government taxes	166,078,743	156,340,596
54. Other unadjusted credits	275,730,008	282,437,953

[1] Represents accruals, including the amount in default.
[2] Includes payments of principal of long-term debt (other than long-term debt in default) which becomes due within six months after close of month of report.
[3] Includes obligations which mature not more than one year after date of issue.
Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission.
Subject to revision.

ORGANIZATIONS

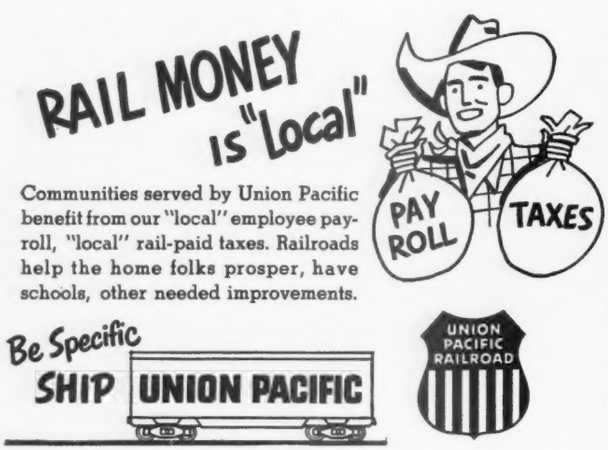
The **American Association of Passenger Rate Men** has elected A. L. Graves of the Pennsylvania as national president. Ralph Klotz, of the Milwaukee, has been elected assistant president, and Paul Nordgren, of the Chicago North Shore & Milwaukee, secretary-treasurer. The national convention of the association will be held in the Buena Vista Hotel, Biloxi, Miss., on October 9-11. One of the major subjects on the docket will be the simplification of passenger tariffs.

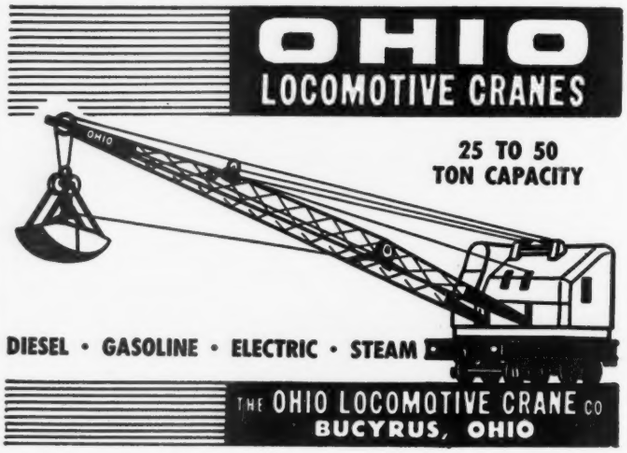
At the recent annual business meeting of the **Railway Business Woman's Association of Chicago,** the following newly elected officers were installed: Martha A. Prestin, Chicago, Milwaukee, St. Paul & Pacific, first vice-president; Muriel Cheal, Chicago South Shore & South Bend, recording secretary; and Catherine Kleppel, Railway Express Agency, corresponding secretary. Miss Iona DeCamp, of the Milwaukee, continues in office as president of the association.

Hugh J. Ward, deputy comptroller of the Pennsylvania, has been elected vice-president of the **Philadelphia Control, Controllers Institute of America.**

R. J. Retzler, traffic manager, Canfield Oil Company, was recently elected president of the **Cleveland Transportation Club.** Other officers elected were: Vice-president, T. A. Keefe, Chesapeake & Ohio; secretary, A. E. Kleinschmidt, Boston & Maine, and treasurer, Leo Zah, the Goodrich Chemical Company.

Lewis E. Yost, assistant general traffic manager, Sherwin Williams Company, has been elected president of the **Traffic Club of Cleveland** succeeding W. J. Brennan, general agent, Reading. Other officers elected to serve for the coming year are: Gordon F. Wilson, (president, Wilson Motor Lines, Inc.), 1st vice-president; R. M. Stadick, (traffic manager, Willard Storage Battery Company), 2nd vice-pres-


RAIL MONEY
is "Local"
Communities served by Union Pacific benefit from our "local" employee payroll, "local" rail-paid taxes. Railroads help the home folks prosper, have schools, other needed improvements.
PAY ROLL
TAXES
Be Specific
SHIP UNION PACIFIC
UNION PACIFIC RAILROAD



ident; W. H. Smith, (general traffic manager, F. C. Russell Company), treasurer, and F. J. Knechtl, (traffic agent, Illinois Central) secretary.

ABANDONMENTS

Application has been filed with the I.C.C. by:

CHICAGO, ROCK ISLAND & PACIFIC.—To abandon 24.1 miles of line between Clear Lake, S. D., and Watertown. The road said operating revenues are not sufficient to justify continued operation.

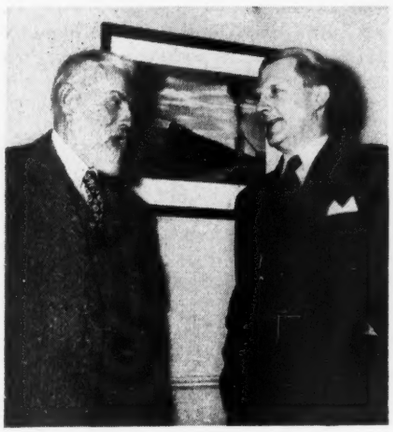
DES MOINES & CENTRAL IOWA.—To abandon 16.7 miles of line between Granger, Iowa, and Perry. Trackage and sidings at Perry would be sold to the Minneapolis & St. Louis, and the latter would build a 300-foot connecting track. The DM&CI said traffic volume on this line does not justify continued operation.

LEHIGH VALLEY.—To abandon a 12.4-mile segment of its Auburn branch line, extending from a point west of Cato, N. Y., to Fair Haven.

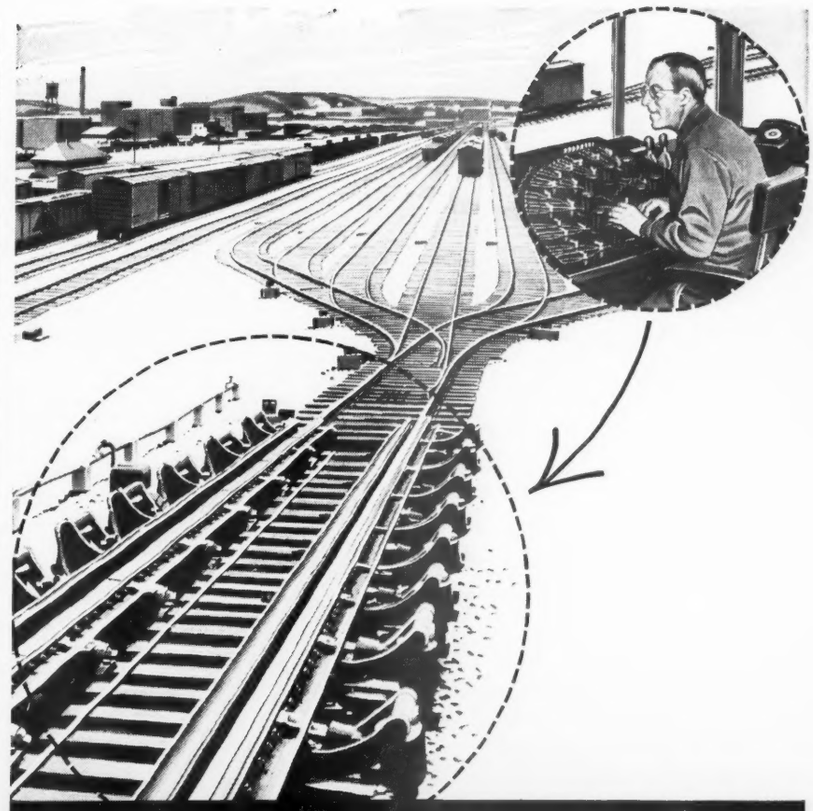
Division 4 of the I.C.C. has **authorized:**

ILLINOIS CENTRAL.—To abandon a 0.5-mile section of its so-called Harlem branch line at Forest Park, Ill.

LIGONIER VALLEY.—To abandon its entire



A COLLEGE THESIS was responsible for a recent meeting between the Russian scientist who is said to have designed and built the world's first diesel-electric locomotive, and N.R. Crump, right, vice-president of the Canadian Pacific. The story began in 1928 when Mr. Crump was studying for his B.S. degree at Purdue University, and was renewed eight years later when, as locomotive foreman at Moose Jaw, Sask., he was working on a thesis for his mechanical engineer's degree. Mr. Crump's subject, "Internal Combustion Engines in the Railroad Field," required a study of facts that were then almost unobtainable. As a result, he turned to the reports of Dr. George Vladimir Lomonosoff, a Russian mechanical engineer, who had designed a 900-hp. diesel locomotive as early as 1909 and had one in operation in 1923. Doctor Lomonosoff's interest in diesels is said to date from the time when he was superintendent of motive power for the Tashkent Railway, where water was scarce and oil abundant. Dr. Lomonosoff's son is now a resident engineer with the Montreal Locomotive Works.



The "SLOWER DOWNER" that speeds up America's freight

● It's called a car *retarder* — but actually it keeps freight moving *faster* through scores of big railroad yards, where incoming cars are switched and made up into trains headed for many different destinations.

In these yards, cars are shoved over the "hump" and roll downhill by gravity into the network of tracks on which new trains are made up. The cars are carefully controlled and accurately directed by a man in a tower overlooking the yard. By remote control, he operates the retarders, which press against the edges of the wheels to govern downhill speed of cars, and the switches, which turn each car into its proper track.

Thus trains get made up more quickly, freight rolls on its way sooner, and you and the rest of the nation get better service.

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ASSOCIATION OF AMERICAN RAILROADS

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line, from Latrobe, Pa., to Fort Palmer, approximately 16 miles. The road will sell a 3.5-mile segment, between Latrobe and Kingston, to the Pennsylvania for $150,000.

PEORIA & PEKIN UNION.—To abandon a 1.8-mile line in Peoria county, Ill. No traffic has been handled over the segment for more than 20 years.

WESTERN MARYLAND.—To abandon a portion of its Leatherwood branch line, 1.1 miles, in Webster county, W. Va. Train service over the line was discontinued in 1947, when the last coal mine in the area was closed.

Denver & Intermountain. — In view of this road's pending application for authority to abandon its entire line, five other roads have asked permission to abandon operation over D&I trackage from Denver, Colo., to Remaco, approximately 7 miles. The five roads said that if the D&I abandonment is approved, they will purchase this 7-mile segment at scrap value and operate it as an industrial spur. The roads are the Atchison, Topeka & Santa Fe; Chicago, Burlington & Quincy; Chicago, Rock Island & Pacific; Denver & Rio Grande Western; and Colorado & Southern.

Texas & Pacific.—The I.C.C. will reconsider its decision denying this road authority to abandon a branch line between McWilliams, La., and Indian Village, approximately seven miles. A petition filed by the road said the factual situation existing at the time of the original hearing in June 1951 has "materially changed." The commission agreed to receive evidence of such changes. (*Railway Age*, January 7, page 74)

FIFTY YEARS of PROGRESS
For "Ontario's Development Road"

The Ontario Northland Railway makes no boast of its length but it has good reason to be proud of its record as "Ontario's Development Road". Its economic importance far outranks its size and it has the unique distinction of having pioneered a vast extent of country rather than of having brought transportation to a country in which the pioneering settlement had been done. Yet it was the insistent clamor of an isolated group of settlers which led to the construction of the railway for a distance of 440 miles from North Bay to Moosonee.

Before 1900, the territory now served by the railway was virtually unsettled and unknown. In that year, ten exploratory surveys were made to find out what there might be of economic importance in the country and the consolidated report which resulted indicated great stands of timber, a very extensive area of arable land and some vague possibilities of mineral wealth.

This, together with the demands for transportation by settlers at the head of Lake Temiskaming, induced the Government of Ontario to undertake the construction of a development railway for a distance of 114 miles north from North Bay. In successive steps over the next thirty years the road was driven north until Moosonee in the James Bay country was reached in 1932. Branch lines were constructed to various points, always to make possible developments in specific areas. Elk Lake, Noranda, Timmins and Iroquois Falls are their termini.

Before the construction of the railway, the country was a trapping area for the Hudson's Bay Company and it was little else. The region was part of the glamour which has distinguished that great company ever since its inception in 1670 but it was cut off by a forbidding, rocky barrier from the rest of Canada and was better known in London than in Toronto.

In 1903, with the railway under construction for less than a year, the whole picture changed. Silver was discovered in August of that year at Cobalt and miners from the four corners of the earth flocked in. Cobalt proved to be one of the three greatest silver areas in mining history and the Cobalt men went on to even greater discoveries. There were Gowganda with its silver, the Porcupine, greatest gold producer on the continent, the Golden Mile at Kirkland Lake and the great copper-gold discoveries at Noranda.

The territory served by the Ontario Northland Railway, and the Temiskaming and Northern Ontario Railway as it was originally called, has produced, during its first half-century of operation, upwards of three billion dollars in base and precious metals and the end is not in sight. Even the Cobalt field has been rejuvenated as a producer of silver, cobalt and base metals. Not a bad public dividend for a publicly-owned railway representing an investment of about fifty millions.

The forests, too, are contributing their quota to the stream of wealth pouring out of the country. For fifty years spruce and pine lumber, birch veneer logs, ties and poles have been standard products on a large scale and pulp and paper products account for two solid trains a day over the Ontario Northland Railway.

The arable land, noted in 1900, is now the basis of a well-established and ever-expanding agricultural economy and it is a guarantee of permanence for the area. Its potential far exceeds the area of cultivated land in Southern Ontario.

With all its mining, industrial and agricultural expansion, Northern Ontario is still a romantic area fulfilling every demand of the sportsman and the tourist. Its myriad lakes retain their beauty and their fighting fish. The bush, as of old, still gives shelter to deer, moose and bear and to the fur bearers which once was its only asset. The geese still fly in their hundreds of thousands in October over the James Bay flats. All these are reached in comfort over the O.N.R.

The line, conceived as a "bush" railway in 1902, will be completely Dieselized in 1955. The people of Ontario builded better than they knew when the railway started its adventurous way north in 1902 and, down through the years, the Ontario Northland Railway has justly earned its name as "Ontario's Development Road".

1902 **TEMISKAMING AND NORTHERN ONTARIO RAILWAY**
ONTARIO NORTHLAND RAILWAY 1952

RAILWAY OFFICERS

EXECUTIVE

Clark E. Miller has been appointed assistant to president—special assignments of the PITTSBURGH & WEST VIRGINIA at Pittsburgh.

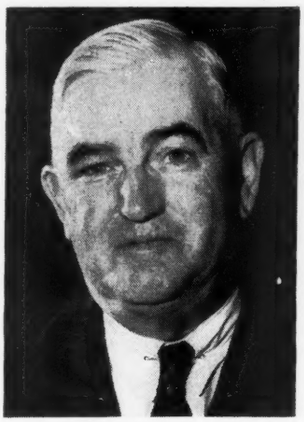
Paul D. Fox, treasurer of the PENNSYLVANIA at Philadelphia, has been appointed also assistant vice-president—finance. Mr. Fox was born at Richmond, Va., on October 8, 1908, and was graduated from Virginia Military Institute (B.S. in C.E. 1930). He joined the PRR in July 1930 as assistant on an engineering corps in the maintenance of way department, Maryland division, at Wilmington, Del., subsequently serving as assistant supervisor track. From November 1935 to January 1937 he was on special duty under the vice-president and comptroller, then becoming supervisor of track. From October 1937 to January 1939 he served

Paul D. Fox

in the vice-president and comptroller's department at Philadelphia and became assistant to comptroller on the latter date. Mr. Fox was appointed auditor disbursements in October 1941, deputy comptroller in May 1943, general auditor in January 1946 and treasurer in February 1947.

E. G. Smith, vice-president, secretary and treasurer of the UNION PACIFIC at New York, has retired. **L. J. Tracy,** controller at New York, has been elected also vice-president. **T. C. Richards,** assistant treasurer at New York, has been elected treasurer, and **A. C. Sherwood,** assistant secretary, has been elected secretary. Mr. Tracy was born at Omaha, Neb., February 24, 1890, and attended Creighton College. He entered railroad service in

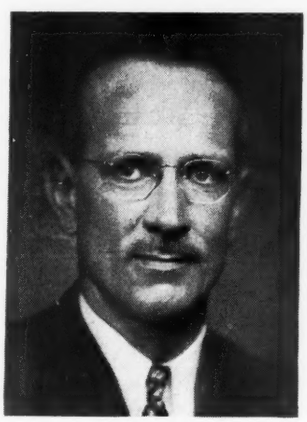
1904 as clerk with the UP, which position he held until 1914, when he joined the Chicago, Milwaukee & St. Paul (now CMStP&P) as special accountant, becoming comptroller of that road in 1918. Mr Tracy was on the accounting staff of the United States Railroad Administration from 1918 to 1921 and from 1921 to 1927 he was comptroller



L. J. Tracy

of the USRA. In 1927 Mr. Tracy was appointed assistant controller of the UP system at New York and the following year he became controller.

Russell L. Koerper, railroad and public utility security analyst, has been appointed executive assistant for the NORTHERN PACIFIC. Graduating from the University of Minnesota, he continued with graduate studies there, before being employed in the office of the comptroller of the university. Since



Russell L. Koerper

1937 he has been a member of the staff of the investment research division of the First Bank Stock Corporation, which owns the First National Banks of St. Paul and Minneapolis and some 70 country banks in the ninth federal reserve district.

OPERATING

J. P. Spears has been appointed acting superintendent of the Colorado

This particular machine is the new 4-speed Strandflex. No belts are used—a patented gear-drive assembly mounted on the motor permits quick, easy, positive speed change. Entire motor-drive unit, including even the starting switch, is completely enclosed to seal out dirt, dust and grit—and give you many *extra* years of trouble-free service.

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Catalogue #31—Single-speed and three-speed countershaft types—⅓ to 3 hp
Bulletin #43 — Four-speed "Strandflex" gear type — ¼ to ½ hp
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division of the SANTA FE at Pueblo, Colo., succeeding **J. E. Lester,** who is on leave of absence.

D. E. Ingman, assistant general freight service manager for the UNION PACIFIC at Omaha, Neb., since 1949, has returned to this position after a 20-month tour of duty as commanding officer of the 702nd Railway Grand Division. He was released from active duty May 31 with the rank of lieutenant-colonel.

G. Austin Border, container engineer for the SOUTHERN PACIFIC at San Francisco, has been appointed to the newly created position of supervisor of perishable claims prevention. **Melvin N. Wilson, Jr.,** assistant container engineer, succeeds Mr. Border.

Brigadier General A. F. McIntyre, a reserve officer serving as assistant chief of transportation for railroad operation, Department of the Army, returned to his civilian post as chief of freight transportation of the PENNSYLVANIA at Philadelphia on July 1. General McIntyre, recalled to uniform in 1950 when the government took over the railroads because of a labor dispute, was in charge of Army operations of the roads under Major General F. A. Heileman, chief of transportation, until the recent relinquishment of Army control. **A. F. McSweeney,** acting chief of freight transportation during General McIntyre's absence, has been promoted to assistant chief of freight transportation, and assigned responsibility for improving Pennsylvania freight service in yard and terminal operations. **A. L. Stewart,** acting superintendent of car service, has been appointed superintendent of car service at Philadelphia.

FINANCIAL, LEGAL & ACCOUNTING

Gerard E. Grashorn has been appointed general solicitor for the CHICAGO GREAT WESTERN, with headquarters at Chicago.

Russell T. Walker, assistant secretary of the NEW YORK CENTRAL, has been elected secretary of the NYC and some 50 affiliated and subsidiary companies, with headquarters as before at New York, succeeding **Joseph M. O'Mahoney,** whose retirement was reported in *Railway Age* June 30, page 80. Mr. Walker was born at Fort William, Ont., 37 years ago and was graduated from the University of Michigan at Ann Arbor, receiving his bachelor's degree in 1936 and his law degree in 1939. He joined the law department of the Central at Detroit in 1940 and was appointed assistant general attorney there in 1945. Mr. Walker became assistant to secretary at New York in September 1951 and was appointed assistant secretary last January 1.

Russell T. Walker

TRAFFIC

Alan G. Kern has been appointed general agent of the QUANAH, ACME & PACIFIC at Washington, D.C., succeeding **L. E. Moeller,** resigned.

A. A. Marcus, general agent of the NORFOLK SOUTHERN, has been promoted to Eastern freight agent—sales and service, with headquarters as before at New York.

DIFFERENTIAL PRODUCTS INCLUDE:

Locomotives, mine cars, mine supply cars, rock larries, mantrip cars, air dump cars, dumping devices and complete haulage systems.

Over a quarter century ago the first (and original) double-trunnion dump car was placed in service by Differential on the L & N. Sound engineering and careful workmanship were such that this car is still in service — still earning money for its owners.

Such details as hardened, self-lubricating pins in door mechanisms, rolled steel weldments instead of castings (making repairs easier when repairs are necessary)—these are examples of details that put Differential in the lead more than 25 years ago — and keep it there!

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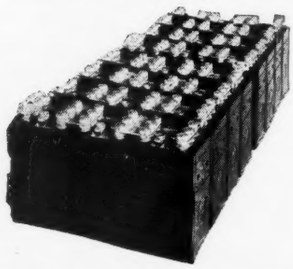

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Because the NICAD nickel cadmium storage battery requires less maintenance you save precious man hours and, at the same time, are assured of reliable, foolproof battery service throughout its long life. The T-Type NICAD battery has an exceptionally high ampere rate of discharge at useful voltage, a vital consideration in engine-starting applications.

BATTERY TYPE	AMPERE HOURS	NUMBER OF CELLS	GROUP TRAY LENGTH A	TRAY WIDTH B	WEIGHT LBS.
THR 30	142	48	32¾"	8"	1825
THR 44	210	48	44¾"	11"	2675

THR-30—Interchangeable with 17-plate, 248 A.H. Lead Acid Batteries
THR-44—Interchangeable with 25-plate, 426 A.H. Lead Acid Batteries

NICAD IS LIGHTER, NEEDS NO ADDITIONAL SPACE

Exceptionally Long Life
Low Cost Operation
Negligible Water Consumption
Low Internal Resistance
Rugged Steel Construction
Very Low Self-Discharge
Uses Standard Charging Equipment

Other NICAD Applications in:
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C. W. Waterman, general freight agent in charge of rates and divisions for the SOUTHERN PACIFIC, has been appointed assistant freight traffic manager at Houston, succeeding **W. H. Stakelum,** who has been transferred to New Orleans as general freight agent. **Henry Best,** assistant general freight agent, succeeds Mr. Waterman at Houston. **M. N. Cowan** has been appointed general freight agent at San Antonio.

Leo E. Berry, commercial agent of the ERIE at Philadelphia, has been appointed general agent at Boston, succeeding **P. W. Johnston, Jr.,** who has been granted a leave of absence to accept a position with the National Carloading Corporation.

Charles E. Zeman has been appointed traffic manager of the Peoria (Ill.) agency of the TOLEDO, PEORIA & WESTERN, succeeding the late **William G. Casley. Collins C. Miller** has been appointed general agent succeeding Mr. Zeman. **Donald O. Schroen** has been promoted to general agent of the Peoria agency.

Mr. Zeman started his railroad service in 1927 as a messenger boy with the Chicago, Rock Island & Pacific, where he became a crew caller and then a yard clerk. He joined the TP&W in 1932 and has held the positions of yard clerk, bill clerk, rate clerk, chief yard clerk and general agent in the traffic department.

J. H. Hatcher, assistant passenger traffic manager of the ATLANTIC COAST LINE at Wilmington, N. C., has been appointed assistant traffic manager at Washington, D.C., with jurisdiction over freight and passenger traffic in the Washington area. Mr. Hatcher was born at Bascom, Fla., on September 4, 1900, and joined the ACL on January 20, 1927, as traveling freight agent at

J. H. Hatcher

Miami, Fla. He became commercial agent at Miami in 1928, assistant general freight agent in 1937, general eastern freight agent at New York in June 1940, manager of development service at Wilmington in June 1941, assistant to vice-president (traffic) in

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1942, executive general agent at Washington in September 1944, and assistant passenger traffic manager at Wilmington in July 1947.

George A. Hoffelder, freight traffic manager-rates and divisions for the BURLINGTON, has retired, after more than 45 years of service. He began his railroad career as a stenographer, and

George A. Hoffelder

was appointed assistant general freight agent in 1925. He became general freight agent in 1936 and assistant freight traffic manager later that year. He was appointed assistant general freight traffic manager in 1940, and in 1950 was named freight traffic manager.

ENGINEERING AND SIGNALING

Arthur Mayfield has been appointed office engineer of the PITTSBURGH & LAKE ERIE.

A. P. Crosley has been appointed assistant engineer maintenance of way in charge of bridges and buildings of the READING. The position of assistant to engineer maintenance of way at Philadelphia, formerly held by Mr. Crosley, has been abolished.

B. H. Crosland, assistant chief engineer for the FRISCO's Western district, has been named assistant chief engineer for the entire system. **F. E. Short,** assistant chief engineer for the Western district, has been appointed division engineer for the Northern division at Fort Scott, Kan. **Frank N. Beighley,** division engineer, Northern division, has been named to the newly created position of roadway engineer at Springfield, Mo.

Mr. Crosland joined the Frisco in 1920 as transitman. He later held the positions of roadmaster at several points, assistant division engineer and division engineer. After serving four years in the Army Engineers Corps in World War II, he returned to the Frisco in 1946, and has held the position of assistant chief engineer on the Western

B. H. Crosland

and Eastern districts, until his current appointment.

As reported in *Railway Age* June 2 **Glen A. Williams** has been promoted to assistant chief engineer maintenance of way of the Central region of the PENNSYLVANIA at Pittsburgh. Mr. Williams was born at Altoona, Pa., on May 1, 1904, and attended Pennsylvania State College (B.S.C.E., 1927). He entered railroad service in 1927 as

Glen A. Williams

engineering corps assistant with the Pennsylvania, advancing to supervisor at Williamsport, Pa., in 1929, division engineer of the Conemaugh division at Pittsburgh in 1939, engineer maintenance of way of the Eastern Ohio division in 1945, and engineer maintenance of way of the Central region in 1950.

Barton Wheelwright, chief engineer of the CANADIAN NATIONAL at Montreal, Que., has retired on pension, after 41 years of service. Mr. Wheelwright was born on March 12, 1888, at Minneapolis, Minn., and was graduated from Harvard University (A.B. 1910, M.E.E. 1911), and Massachusetts Institute of Technology. He entered railroad service in 1911 as draftsman with the Grand Trunk (CN)

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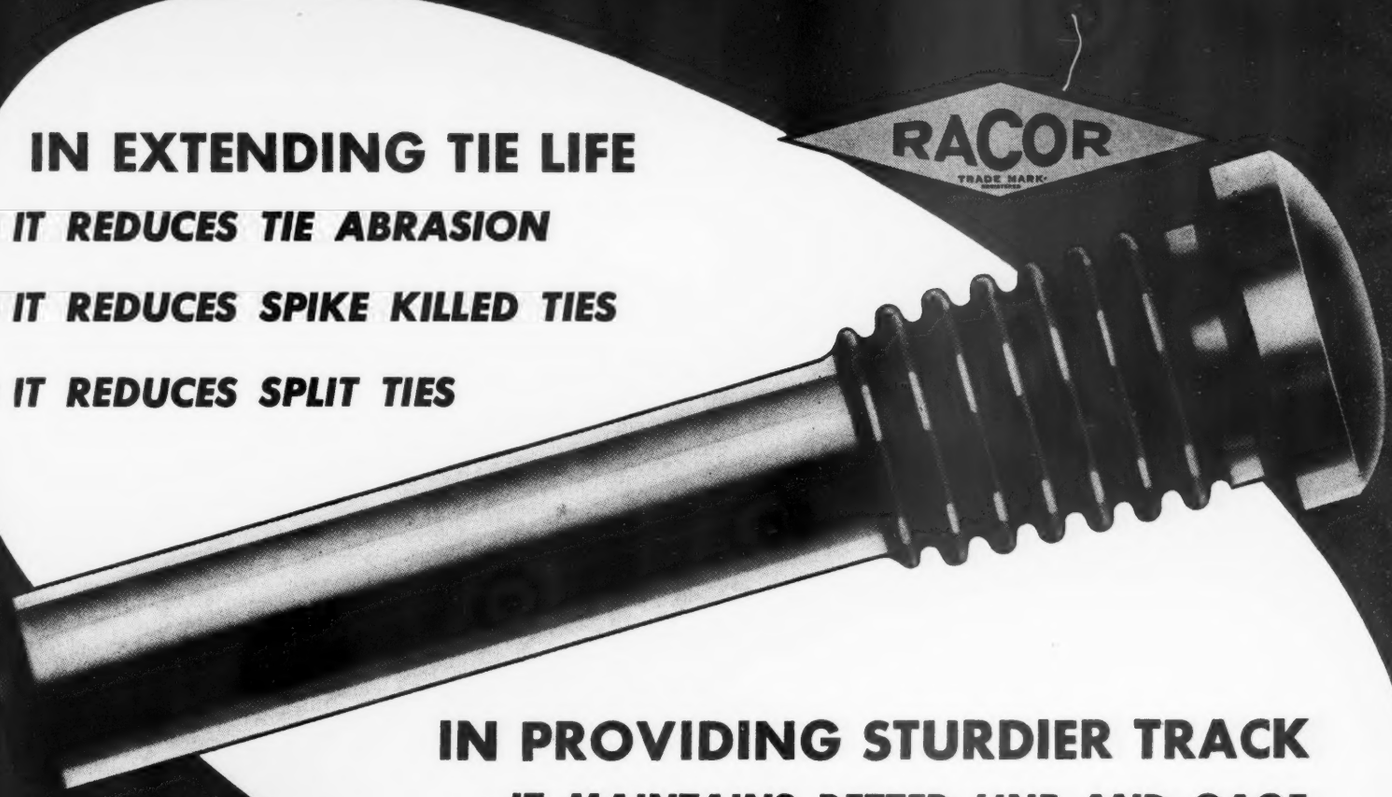

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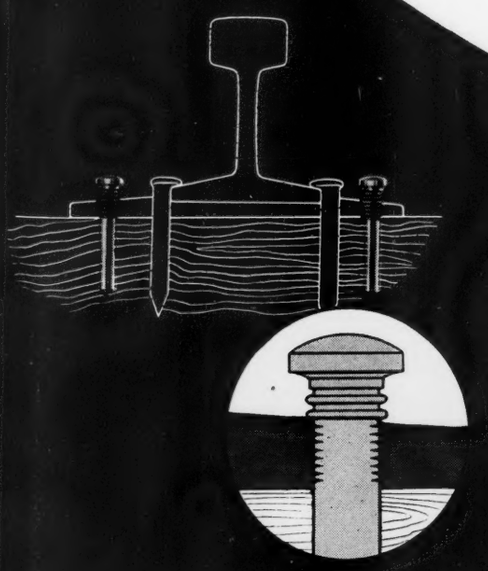

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72" Clearance
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The "SIX-TEN" Mast is available on the versatile Model "E" (2,000-lb. cap.) and the EW (2,500-lb. cap.).

The H (3,000-lb. cap.) and HW (3,500-lb. cap.) models with SIX-TEN mast have a **110"** lift floor-to-forks, **72"** clearance, **45"** free lift.

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at Montreal and later served as assistant signal engineer, acting signal engineer and engineer maintenance of way of GT lines in New England. At the close of federal control of railroads after World War I Mr. Wheelwright was appointed engineer-accountant dealing with matters pertaining to settlement between the corporation and the United States Railroad Administration. He was appointed special engineer of the CN in March 1923, becoming assistant to chief engineer in January 1928, engineer maintenance of way of the Central region in July 1936, chief engineer of that region at Toronto in July 1939, and chief engineer of the system at Montreal in April 1945.

Barton Wheelwright

PURCHASES & STORES

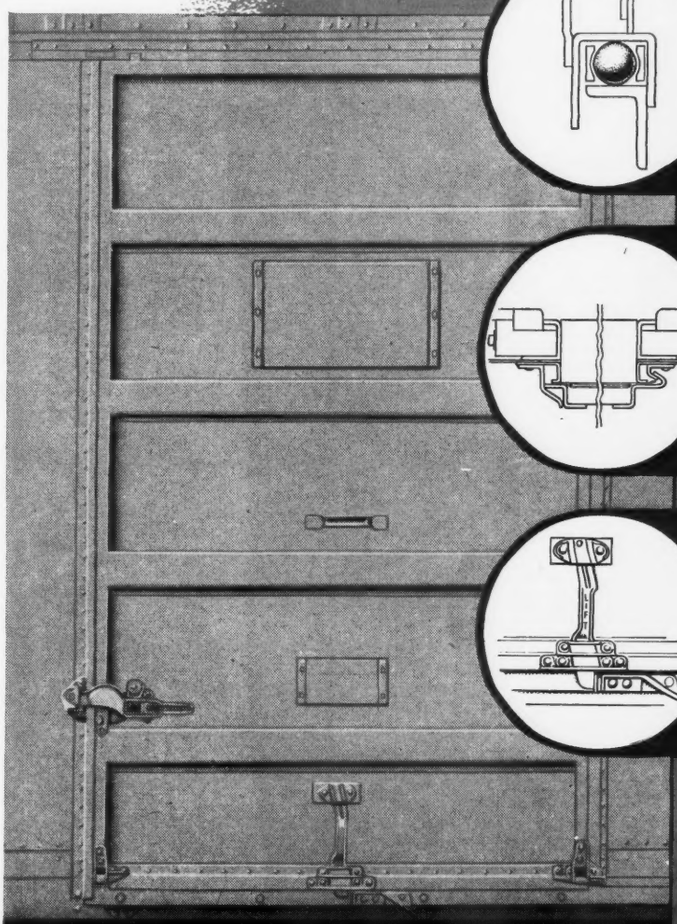
As *Railway Age* reported on June 23, **J. F. McAlpine,** assistant general purchasing agent for the BURLINGTON, has been appointed director of purchases and stores. **Joseph P. Blum,** general purchasing agent, has retired. **H. V. Schiltz,** assistant general purchasing agent, has been named general purchasing agent. **C. E. Swanson,** general storekeeper, has been appointed assistant general purchasing agent. **R. A. Schuff,** assistant general storekeeper, has been named general storekeeper.

Mr. McAlpine began his railway career with the Burlington in 1909 as a platform foreman and held several clerical positions before being appointed chief clerk for the general storekeeper in 1920. In 1934 he became junior assistant purchasing agent and in 1947 was appointed assistant general purchasing agent.

Mr. Blum has spent his entire railway career with the Burlington, starting in the purchasing department in 1910. He was appointed assistant purchasing agent in 1931 and in 1946 was named purchasing agent. He became general purchasing agent in 1947.

Mr. Schiltz started with the Burlington in 1918 as a messenger in the stores department, and held several clerical positions before being appointed buyer in the purchasing and stores

SUPERIOR
CAR DOOR



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ROLL EASILY • LOCK TIGHTLY

SUPERIOR CAR DOOR COMPANY

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LESSONS IN COST LESSENIN'...

2 NEW CLARK FILMS

ON MORE EFFICIENT

l.c.l. HANDLING

Here's a close-up inspection, at first hand, of two methods which simplified and speeded up the handling of l.c.l. freight — with sharp reductions in cost.

LOW COST l. c. l. HANDLING . . .

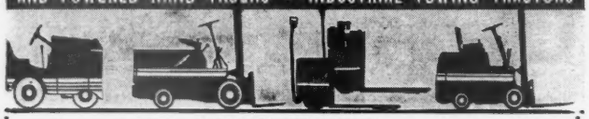
How a Class A railroad revamped its l. c. l. handling in Springfield, Missouri, operating hub of the Frisco Railway. This black-and-white silent film takes only 8 of the most stimulating and profitable minutes you have ever spent.

MODERN l. c. l. HANDLING IN HOLLAND . . .

Goes to show that you can't beat the Dutch — this interesting 11-minute black-and-white sound film has some worthwhile ideas for domestic freight handlers. (Netherlands State Railway Film).

You can absorb these profitable Lessons in Cost Lessenin' while seated comfortably in your office. The films are available on a loan basis—simply write your request for them, giving three suitable dates.

CLARK ELECTRIC AND GAS POWERED FORK TRUCKS
AND POWERED HAND TRUCKS • INDUSTRIAL TOWING TRACTORS



INDUSTRIAL TRUCK DIVISION • CLARK EQUIPMENT COMPANY • BATTLE CREEK 24, MICHIGAN

Please send: ☐ "Low Cost l.c.l. Handling" movie ☐ "Modern l.c.l. Handling in Holland" movie

Show dates:..... Alternate dates:.....

Name .....

Firm Name .....

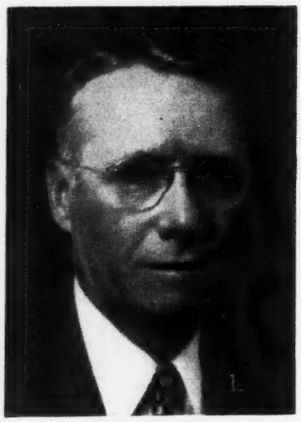
Address .....

City..... Zone..... State.....

AUTHORIZED CLARK INDUSTRIAL TRUCK PARTS AND SERVICE STATIONS IN STRATEGIC LOCATIONS

department in 1932. He was appointed assistant general purchasing agent in 1947.

Mr. Swanson started with the Burlington in 1911 as night call boy, and subsequently held positions as district storekeeper, traveling storekeeper and acting general storekeeper. In 1945 he



J. F. McAlpine

Joseph P. Blum

H. V. Schiltz

was named assistant to general storekeeper. He became assistant general storekeeper in 1946, later being named general storekeeper.

Mr. Schuff's railway career dates back to 1903, when he started as a laborer with the Burlington. He held

Cut delays

HOLD CLOSER SCHEDULES WITH WESTINGHOUSE FE RADIO

Unforeseen delays needn't disrupt operations if communications are clear, quick, dependable. Westinghouse railroad radio has solved many problems instantly, allowing dispatchers to save hundreds of operating hours.

In one instance*, a Westinghouse FE Railroad Radio saved hours of delay when a truck was abandoned on a spur track. In another instance, six hours were saved when a freight was cleared from a blind siding by using railroad radio. And in yard operations, minutes pyramid into hours of savings.

The Westinghouse FE railroad radio offers the utmost availability and dependability. It has exceptional clarity, meets or exceeds AAR and FCC standards. A full accessory line gives it flexibility to meet your needs. Write for further information: Westinghouse Electric Corporation, Railroad Communications Section, Dept. A-49, 2519 Wilkens Avenue, Baltimore 3, Maryland. Or call your Westinghouse representative today.

*Names and full details on request.

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FE RAILROAD RADIO

J-02249

MODERN TIME and COST SAVERS BUILT BY... Standard GRAVITY & POWER CONVEYORS

Standard LITEWATE *Sectional Roller Conveyor*

LIGHT AND EASY TO CARRY

Put it where you need it!

— ideal for loading and unloading trucks and conveying jobs that require moving about — one man can easily pick up and carry a section or curve with little effort. Handles commodities weighing up to 60 lbs. — moves bags, cases, cartons, hollow bottom, narrow, cleated and irregular packages or articles not suited to wheel conveyors. Available in 10 ft. and 5 ft. straight sections and 90° and 45° curves. Write for Bulletin 63 B — address Dept. RA-72.

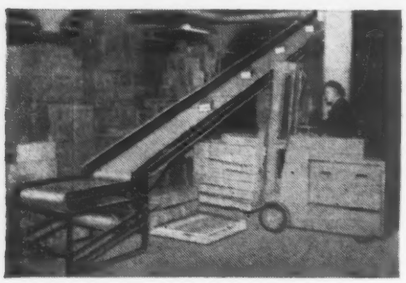
Standard All Purpose Roller Conveyor

— available in a complete line of roller sizes and capacities designed to allow the selection of the best roller for the job, from a 1 inch diameter roller, capacity 35 lbs., to a 3½ inch diameter with a capacity of 550 lbs. Any commodity with one smooth riding surface can be carried — boxes, cases, cartons, lumber, milk cans, brick, building tile. Straight sections and 90° and 45° curves. Write for Bulletin 63 B — address Dept. RA-72.

Faster Handling in Shipping Rooms with the HANDIBELT

— conveys bags, cartons, boxes horizontally or at any decline and incline angle within its range. Easily wheeled about by one man — easy to adjust and use — fits in crowded aisles, cars, freight elevators. Handles packages up to 135 lbs. Can be placed in series to form a complete conveyor line. Available in 3 sizes: No. 11, No. 16, and No. 21 with 14 and 21 inch belt widths. Write for Bulletin No. 63 B — address Dept. RA-72.

Lift or Lower . . . Floor to Floor . . . with the INCLINEBELT



— move boxes, cases, cartons, sacks or bundles from basement to first floor, or any floor to floor — continuously. Compact, simple to install — minimum maintenance. Lift or lower 10 to 20 lbs. of live load per ft.; floor elevations of 8 ft. to 14 ft. 6 inches inclusive; belts widths — 8, 12, 14, 18 and 24 inches for commodities of various sizes. A horizontal feed section is generally used to deliver commodities to the Inclinebelt. Write for Bulletin 63 B — address Dept. RA-72.

STANDARD CONVEYOR COMPANY

General Offices: North St. Paul 9, Minnesota

Sales and Service in Principal Cities

Send for Standard Bulletin 63 B describing gravity and power conveyors units — address Dept. RA-72.

several clerical positions until 1923 when he became division storekeeper. He served in this capacity at several

R. A. Schuff

points, and in 1942 was appointed district storekeeper. Later that year he became traveling storekeeper and in 1949 was appointed assistant general storekeeper.

MECHANICAL

F. Haldane, road foreman of engines for the Port Arthur division of the CANADIAN NATIONAL, has been named master mechanic for the Edmonton division.

A. D. Macpherson, controller of tests and materials research laboratory of the CANADIAN NATIONAL at Montreal, has retired after 34 years of service.

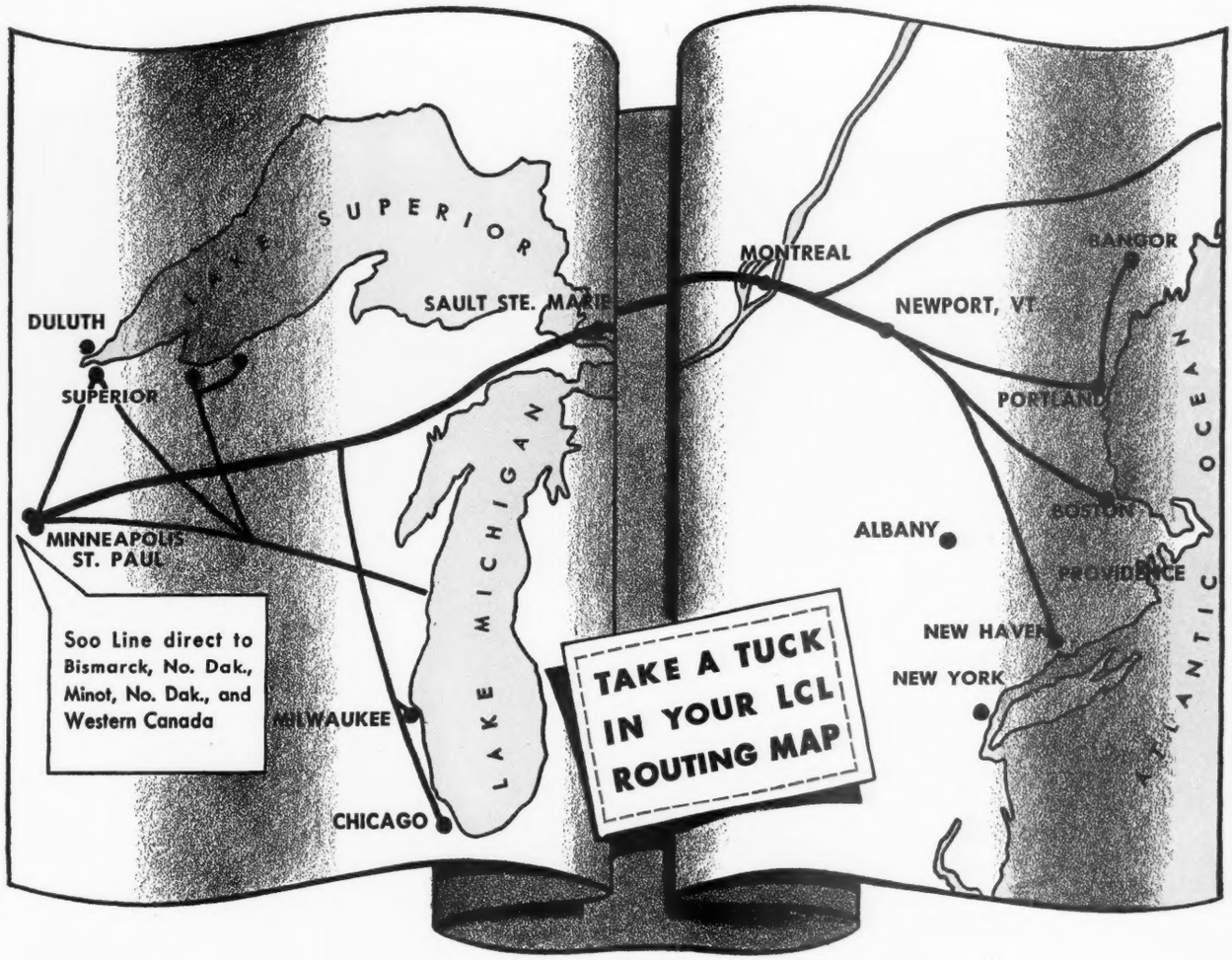
OBITUARY

Elmer B. Clotfelter, general agent for the FRISCO at Charlotte, N. C., died June 16.

Alonzo G. Trumbull, who retired on April 1, 1947, as chief mechanical engineer, Advisory Mechanical Committee, of the CHESAPEAKE & OHIO, the NEW YORK, CHICAGO & ST. LOUIS, the ERIE and the PERE MARQUETTE at Cleveland, died on May 27.

C. H. Mathews, Jr., 70, who retired in 1947 as passenger traffic manager of the PENNSYLVANIA, died on June 25 at his home in Chester county, Pa., after a long illness.

G. L. Howell, 57, auditor of disbursements of the ATLANTA & WEST POINT, the WESTERN OF ALABAMA and the GEORGIA at Atlanta, Ga., died of a heart attack at his home on June 19. Mr. Howell was born at Augusta, Ga., on December 6, 1894, and entered the service of the A&WP and WofA on July 1, 1919. He was appointed auditor of disbursements of the three roads on January 17, 1944.



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Soo Line Service Offers 5 Arrivals Weekly and a "Consist Report" 2 Days in Advance of Your Car

If you ship from New England to the upper Midwest look to the Soo Line-CPR Newport Merchandise service. Here are some of the *plus* benefits this outstanding LCL operation offers you:

1. It consolidates merchandise from all points in New England at Newport, Vt.
2. It takes actually *less* than 5 days for the run.
3. It's a 5 times-a-week service.
4. Each car is preceded 2 days by a detailed "consist report."
5. It makes excellent connections at Twin Cities to all points beyond.
6. It is exceptionally dependable.

That's just a bare outline—you'll want more complete details so that you can fit this unusual LCL service into your shipping picture. Your local Soo Line agent has them for you. He'll be happy to help you take full advantage of Soo Line's time-saving, worry-erasing Newport Merchandise service . . . better call him now!

—your working partner 7 days a week

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Current Publications

FILMS

Artificial Respiration. 16 mm., sound, 6 minutes. Seminar Films, Inc., 347 Madison ave., New York 17. $37.50.

Demonstrates the newly adopted back pressure arm-lift method of artificial respiration which supersedes the Schafer system.

This new technique forces air into, as well as out of, the lungs and for that reason can be used even in cases of asphyxiation from "warfare" nerve gases, which paralyze chest muscles and make air-intake through chest recoil impossible. It is a teaching film, and was planned and produced with the help of national organizations concerned with life-saving, first aid, and health and safety education. It shows and describes orally the procedures as enacted by Springfield College experts. Its step-by-step pattern can be followed easily by anyone learning the back-pressure arm-lift method.

Railroads and National Defense. 16 mm., sound, color, 12 minutes. Association of American Railroads, Transportation bldg., Washington 6, D. C.

Portrays the railroads' role in the rearmament program and emphasizes the overwhelming essentiality of the railroads in fulfilling the military transportation requirements of the nation—what it takes to meet the need and how it is done. A TV version of the film bears the title "Right of Way—U.S.A."

BOOKS

Heating, Ventilating and Air Conditioning Guide, 1952 Edition. 1,496 pages. American Society of Heating and Ventilating Engineers, 62 Worth st., New York 13. $7.50.

This annual revision of the guide of the American Society of Heating and Ventilating Engineers, like its predecessors, comprises one of the most complete volumes of its kind published. The technical data section comprises 1,064 pages of technical and design information on 50 different subjects. Particular attention is called to the fact that 17 of the 50 chapters in the guide have been the subject of extensive revision and improvement. While this guide is primarily of value to those in the building and industrial heating, ventilating and air conditioning field, its basic information is of real value to those who have to deal with the heating and air conditioning of shop buildings, as well as to those concerned with problems of air conditioning in railroad passenger cars.

Clear the Track; True Stories of Railroading, by Louis Wolfe. 181 pages, illustrations. J. B. Lippincott Company, East Washington sq., Philadelphia 5, Pa. $2.50.

Here are true and exciting stories of railroad adventure that will thrill boys and girls (ages 10-15) and open to them a new field of heroism. Typical are the stories of the famous "Casey" Jones saving a trainload of passengers at the cost of his own life; and of George Westinghouse, who proved his invention of the air brake when no one would believe in it.

There are 18 stories, all on American railroading except the inspiring account of the Czech train which recently made headlines by "running away" to freedom.

PERIODICAL ARTICLE

Los Angeles' Transit Problem: The Way Out is Up. Business Week, May 17, 1952, pp. 134-144. McGraw-Hill Publishing Company, 330 W. 42nd st., New York 18. Single copies 25 cents.

One of Los Angeles' biggest benefactors has become its biggest problem. The automobile, which enables commuters to work in the city and live outside, has made the whole county one big traffic jam. The only resort is public transportation. But congestion has throttled the surface transit system to the point where commuters can't turn to it even if they want to. Right now the city is mulling over three possible overhead rapid transit systems: Monorail, Duorail, and Railplane.

MAP

United States and Mexico. Available to shippers from J. M. Hrebec, freight traffic manager, Missouri Pacific Lines, 1710 Missouri Pacific bldg., St. Louis 3, Mo.

This map, intended particularly for shippers, shows in color the territorial jurisdiction of the various rate bureaus.

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"YOUR FREIGHT GOES GREAT WHEN IT GOES GREAT NORTHERN"
RAILWAY
Serving ten States and two Canadian Provinces between the Mississippi Valley and the Pacific Coast.